

Contribution of Islamic Scholars Of Golden Era.

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DEDICATION:

This book is dedicated to all the seekers of knowledge — past, present, and future — and to the great scholars of Islam whose wisdom continues to guide the world.

Specially dedicated to my teachers, family, and students who inspired me to write and share this work.

ACKNOWLEDGEMENT:

I sincerely thank all those who encouraged and supported me during the preparation of this book. My gratitude goes to my teachers, colleagues, and students for their continuous motivation. I am also thankful to all researchers and historians whose valuable works helped me collect accurate information about the great Islamic scholars. Most importantly, I thank Almighty Allah for giving me the strength, patience, and opportunity to complete this book.

INTRODUCTION:

The history of human knowledge cannot be complete without recognizing the golden age of Islamic civilization. Between the 8th and 15th centuries, Muslim scholars made great contributions to every field of learning—science, medicine, mathematics, astronomy, chemistry, philosophy, and engineering etc. Their discoveries and writings became the foundation for the modern sciences we study today.

This book, *“Contributions of Islamic Scholars in Science and Medicine”*, is written to highlight the achievements of these great thinkers in simple and easy English. The chapters are arranged in chronological order so that the reader can clearly understand how knowledge developed step by step—from the early scholars like Al-Kindī and Al-Khwarizmi to later geniuses like Ibn Sina, Al-Razi, and Al-Tusi.

Every chapter introduces two scholars, explaining his life, major works, and the importance of his discoveries. It also shows how their ideas reached Europe and influenced the Renaissance. The aim of this book is to remind & inspire students and readers that the pursuit of knowledge has always been a key part of Islamic tradition and that science and faith can progress together.

PREFACE:

I have written this book to make the younger generation aware of the rich heritage of Islamic scholarship. Many students today learn about Western scientists but know little about the Muslim scholars who laid the foundation for modern learning. Their efforts in translating Greek and Persian works, experimenting with new ideas, and building observatories, hospitals, and libraries changed the world forever.

This book is written in easy English so that readers of all backgrounds can understand it easily. I have avoided difficult or technical words and have tried to keep the style clear, simple, and educational. Each scholar is presented in a short, readable chapter that explains his contributions to science, medicine, mathematics, and other fields.

I hope that this work will inspire readers to value the pursuit of knowledge and to take pride in the contributions of Islamic civilization. May this humble effort encourage others to research, write, and spread awareness of our shared scientific history. — Dr. Mohamed Shakeel Shamsi

ABOUT THE AUTHOR:

This book is compiled by Dr. Mohamed Shakeel Shamsi (B.A.M.S, M.D, PhD) on Islamic scholars of before, during golden era & after it. I am a medical doctor, author of many books (in English) on medical subjects, Tibb e nabi (s.a.w) etc.

Dr. Mohamed Shakeel Shamsi is a passionate researcher and writer dedicated to promoting knowledge about the contributions of Islamic civilization to world science and culture. He has studied the lives and works of classical Muslim scholars for many years and has presented their achievements in a simple and understandable way for students and general readers.

With a deep interest in history, education, and the progress of science, Dr. Shamsi believes that understanding our past helps build a better future. His writings aim to connect modern readers with the rich intellectual legacy of Islam and to inspire curiosity, creativity, and respect for knowledge.

This book reflects his sincere effort to preserve the memory of great Islamic scholars and their impact on the world of science and learning.

ABOUT THE BOOK:

In this book, 1st chapter is on Caliphates (khilaafat), dynasties, sultanates, empires etc, to make you understand the different Caliphs came in Islamic age & scholars of this period.

This book is a collection of the remarkable contributions made by great Islamic scholars who played a vital role in the growth of science and knowledge. Their discoveries and innovations helped different fields of learning to flourish and laid the foundation for much of the progress we see in the modern world today. These scholars built upon the works of earlier scientists and thinkers, studied them deeply, corrected their mistakes, and developed new ideas through research and observation.

The book covers a wide range of subjects such as mathematics, geometry, astronomy, trigonometry, medicine, surgery, anatomy, and the study of human and animal health. It also explores their work on vision and eye diseases, agriculture, history, geography, chemistry, mechanics, machinery, and the design of devices and instruments. Topics like clock making, time calculation, the movement of the sun, distillation methods, perfume making, architecture, carpet designing, book writing, and the art of eloquence are also included. In addition, it highlights their research on natural phenomena such as storms, sea behavior, and winds, along with studies of spirituality, languages, and the improvement of earlier scientific works.

The book is written in simple and easy English so that even school-going students can understand it easily and feel inspired by the achievements of these scholars. Each chapter is arranged in chronological order, starting from the earliest scholars

and moving toward the later ones. This structure helps readers understand how knowledge was passed from teacher to student, and how later scholars were influenced, guided, or inspired by the works and ideas of their predecessors.

Through this book, readers will discover how Islamic scholars not only preserved the knowledge of past civilizations but also expanded it, paving the way for modern science and learning. The book is available in softcopy only & you can take printout of it. Also please visit my website www.tib-e-nabi-for-you.com to read about tibb e nabawi (Teachings of Prophet Muhammad (s.a.w) about health & uses of herbs, fruits, vegetables etc).

ABOUT THE SCHOLARS:

The scholars mentioned in this book were among the greatest minds in history. Most of them were Muslims, while a few belonged to other faiths. Yet, all shared one noble goal — to seek knowledge and to benefit humanity through learning, discovery, and innovation. They were true polymaths, excelling in multiple subjects such as science, medicine, mathematics, astronomy, philosophy, and engineering. Allah had blessed them with intelligence, curiosity, and creativity, enabling them to invent machines, design instruments, perform experiments, and make new discoveries that changed the world.

These scholars were honest, sincere, and devoted to spreading knowledge. They never hide their findings but eagerly shared them for the progress of mankind. They believed that learning was an act of worship and that education should serve humanity. Many of them were not only scientists but also Islamic scholars (Ulama), well-versed in the Quran and Hadith. Their deep faith inspired them to study nature as a reflection of Allah's creation and wisdom.

They studied the work of earlier scholars — especially Greek scientists and philosophers — and built upon their knowledge. They were humble learners and excellent teachers, always open to new ideas and eager to correct errors through reason and observation. Their dedication, honesty, and sincerity became the foundation of the scientific method we use even today.

SOURCES:

All the information presented in this book has been carefully compiled from various reliable sources. These include educational websites, Wikipedia and several historical references. Some of the material has also been inspired by documentary films produced by BBC London and now available on YouTube. Every effort has been made to ensure that the facts are accurate, authentic, and beneficial for readers.

NOTE TO READERS:

This book has been written in easy English so that you can easily understand the life and works of Islamic scholars. Each chapter focuses on two scholars and their contributions to science and knowledge. You can read the chapters in order or select any scholar that interests you. Please read the whole book & share it with others. At the end of each chapter, you are encouraged to reflect on how their ideas still affect our modern world.

1. The Caliphates (different Khilaafats in Islamic era).

Meaning of Caliphate (Khilaafat) in Islam:

The word Caliphate (al-Khilāfah) (الْخِلَافَةُ) comes from the Arabic word Khalīfah (خَلِيفَةً) which means successor, deputy, or representative. In Islam, the Caliph (Khalīfah) is considered the leader of the Muslim Ummah (community) after the Prophet Muhammad ﷺ. He should not bring new religion (because Prophet-hood ended with Muhammad ﷺ), but he should protect Islam, rules with justice, and applies the Sharīah (Islamic law).

Summary of caliphate:

	Caliphate (English)	Arabic (Indo-Pak style)	Period (CE)	Notes
1	Rashidun Caliphate (Rightly Guided)	الرَّاشِدَةُ الْخِلَافَةُ	632–661 AD	Four rightly guided caliphs (Abu Bakr, Umar, Uthman, Ali). Golden age of Islam.
	Hasan Ibn Ali ruled for about 6 months only.	الحَسَنُ بْنُ عَلِيٍّ	661 AD	Gave-up the caliphate for peace treaty with Mu'āwiyah.
2	Umayyad Caliphate (Damascus). Further formed Córdoba Caliphate (Qurtubah قرطبة khilaafat) by descendants of Umayyad Caliphate of Córdoba (Spain).	الْأُمَوِيَّةُ الْخِلَافَةُ قُرْطُبَةُ فِي الْأُمَوِيَّةِ الْخِلَافَةُ	661–750 AD 929–1031 AD	First dynastic caliphate, capital in Damascus; expanded empire from Spain to Sindh. Abdul Rehan-III in Spain declared Córdoba caliphate thus Cordoba became cultural capital.
3	Abbasid Caliphate (Baghdad) Further formed by Abbasid Caliphate (Cairo, under Mamluks) (in Egypt)	الْعَبَّاسِيَّةُ الْخِلَافَةُ الْعَبَّاسِيَّةُ الْخِلَافَةُ	750–1258 AD 1261–1517 AD	Golden Age of Islam, Baghdad as center of science & culture; ended by Mongols. Abbasid family continued symbolically under Mamluk protection in Cairo.
4	Fatimid Caliphate (Ismaili Shi'a) (in Egypt)	الْفَاطِمِيَّةُ الْخِلَافَةُ	909–1171 AD	Rival Ismaili caliphate, based in Cairo after 969 AD; ended by Salahuddin in 1171 AD.
5	Ayyubi caliphate Kurdish Sunni Muslims.	الدَّوْلَةُ الْأَيُّوبِيَّةُ	1177-1250 AD	Founded by Salahuddin Ayyubi in 1171 AD & same year abolished Fatimid caliphate in Egypt; ruled Egypt, Syria, Palestine. North Iraq; Salahuddin captures Jerusalem On 2 nd October 1187 AD, by winning the battle of Hattin.
6	Ottoman Caliphate	الْعُثْمَانِيَّةُ الْخِلَافَةُ	1517–1924 AD	After defeating Mamluks, Ottomans assumed caliphate; lasted until modern times.
9	Modern Period (No universal caliphate)	_____	1924–present	No widely recognized caliphate after Ottoman abolition.

Sultanates (632–1924 AD):

	English Name	Arabic Name	Years (CE)	Type	Capital(s)	Notes
1	Umayyad Emirate of Córdoba	قُرْطُبَة إِمَارَة	756–929	Emirate	Córdoba	Became Caliphate in 929 again, before this they were emirates from 756 to 929 AD.
2	Seljuk Sultanate	سُلْطَنَة السَّلْجُوقِيَّة	1037–1194	Sultanate	Nishapur, Isfahan	Powerful Sunni Turkish dynasty
3	Ayyubid Sultanate	سُلْطَنَة الْأَيُّوبِيَّة	1171–1250	Sultanate	Cairo, Damascus	Founded by Salahuddin
4	Mamluk Sultanate	سُلْطَنَة الْمَمْلُوك	1250–1517	Sultanate	Cairo	Defeated Mongols, ruled Egypt & Syria
5	Delhi Sultanate	دِلِّي سُلْطَنَة	1206–1526	Sultanate	Delhi	Five dynasties in India
6	Almoravid Dynasty	الْمُرَاطُون	1040–1147	Sultanate	Marrakesh	Berber dynasty
7	Almohad Dynasty	الْمُوحِدُونَ	1121–1269	Sultanate	Marrakesh	Succeeded Almoravids
8	Granada Emirate	غَرْنَاطَة إِمَارَة	1238–1492	Emirate	Granada	Last Muslim state in Spain
9	Safavid Empire	الصَّفَوِيَّون	1501–1736	Empire	Tabriz, Isfahan	Shi'a dynasty, rival of Ottomans
10	Mughal Empire	الْمَغُول سُلْطَنَة	1526–1857	Empire	Delhi, Agra	Successor to Delhi Sultanate

Difference between Caliphate, Sultanate, Emirate, Dynasty, empire:

Term	Meaning	Ruler's Title	Main Idea / Example
Caliphate	A large Islamic state ruled by a Caliph, who is considered the political and religious leader of all Muslims.	Caliph (Khalīfah)	Abbasid Caliphate, Umayyad Caliphate
Sultanate	A Muslim kingdom or state ruled by a Sultan (king-like ruler, not necessarily religious head).	Sultan	Delhi Sultanate, Ottoman Sultanate (before claiming Caliphate)
Emirate	A smaller state or province ruled by an Emir (prince, commander, or governor). Sometimes part of a larger Caliphate.	Emir	Emirate of Granada, modern UAE (United Arab Emirates)
Dynasty	A family line of rulers who keep ruling for generations. Can rule a Caliphate, Sultanate, or Kingdom.	Depends (Caliph, Sultan, King, etc.)	Mughal Dynasty, Safavid Dynasty
Kingdom/ Empire	A very large state controlling many regions and peoples, often ruled by an Emperor or King.	Emperor / King	Roman Empire, Mughal Empire, Ottoman Empire

The Quran says: Surah al-Baqarah (2:30):

وَإِذْ قَالَ رَبُّكَ لِلْمَلٰئِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً ۖ قَالُوا أَتَجْعَلُ فِيهَا مَن يُفْسِدُ فِيهَا وَيَسْفِكُ الدِّمَآءَ ۚ وَنَحْنُ نُسَبِّحُ بِحَمْدِكَ وَنُقَدِّسُ لَكَ ۗ قَالَ إِنِّي أَعْلَمُ مَا لَا تَعْلَمُونَ ﴿٣٠﴾

And when your Lord said to the angels: “Indeed, I will place a successor (Khalīfah) upon the earth.”

They said: “Will You place upon it one who will cause corruption and shed blood, while we glorify You with praise and sanctify You?”

Allah said: “Indeed, I know that which you do not know.”

Hadith: The Prophet ﷺ said: The Children of Israel were ruled by Prophets. Whenever one Prophet passed away, another Prophet would take his place. After me, there will be no Prophet, but there will be many Caliphs (Khulafā).

The people asked, “O Messenger of Allah, what should we do?”

He ﷺ replied: Follow the one who is given allegiance first, and give them their rights. Allah will question them about how they ruled those placed under their care. Bukhari: 3455 book no. 60.

The Rashidun (Raashida) caliphate (al-Khilāfah ar-Rāšidah) (الْخِلَافَةُ الرَّاشِدَةُ):

The Rashidun caliphate (Raashida) (al-Khilāfah ar-Rāšidah) (الْخِلَافَةُ الرَّاشِدَةُ) is a title given for the reigns of the first caliphs Abu Bakr, Umar, Usman, and Ali (r.a). Its total period was from 632 – 661 AD (11 – 40 Hijri era). It was called as the Caliphate of the Rightly Guided Caliphs, because these rulers closely followed the teachings of Prophet Muhammad ﷺ. Its first capital was Madinah later moved to Kufa (Iraq). This period was marked by rapid expansion of Islam, spread of justice, Shūrā (consultation) and compilation of the Qurān into a single book. It was the golden era of Islamic leadership, guided by faith, justice, and expansion of Islam. In these 30 years of caliphate, Islam spread beyond Arabia into Persia, Egypt, Syria, Palestine, Iraq, and North Africa.

Caliphate of Abu Bakr al-Siddiq (632–634 AD).

Full Name: Abdullah ibn Abi Quhafah. He was born in 573 AD in Makkah, from the Quraysh tribe. His father's name was Uthman Abu Quhafah and his mother was Umm al-Khair Salma bint Sakhr. He was among the earliest converts to Islam and the closest companion of Prophet Muhammad ﷺ.

Abu Bakr was known for his honesty, humility, and strong faith. He was the Prophet's companion during the migration (Hijrah) to Madinah and supported him throughout his mission.

He was the 1st Caliph from 632 to 634 AD only. During his caliphate, Abu Bakr faced rebellions from tribes that left Islam after the Prophet Muhammad ﷺ, known as the Ridda Wars. He united Arabia again under Islam and began the collection of the Quran into one book to preserve it. He also sent armies to defend Islam beyond Arabia.

His caliphate (Khilaafat):

He was the 1st Caliph of Islam. His Caliphate last around 2 years only & Umar (r.a) became the next Caliph.

After Prophet Muhammad ﷺ in 632 AD, the Muslims were deeply saddened and confused about who should lead them. Abu Bakr al-Siddiq (r.a), the closest companion of the Prophet ﷺ, was chosen as the first Caliph (Khalifah) of Islam. His leadership came at a very difficult time — some tribes refused to pay zakat, while others followed false prophets and turned away from Islam. Abu Bakr (r.a) stood firm and led the Ridda Wars (Wars of Apostasy) to bring these tribes back to Islam, showing great courage and wisdom.

He worked hard to unite all Muslims under one faith and government. He also sent armies to defend and spread Islam in Iraq and Syria, laying the foundation for the great Islamic empire that grew under later caliphs. One of his most important

achievements was ordering the compilation of the Qur'an into a single book after many memorizers of the Qur'an were martyred in battle. This preserved the Holy Quran for all generations.

Abu Bakr (r.a) ruled for only about two years, but his short caliphate was full of strength, justice, and sincerity. He lived simply, avoided luxury, and used his position only to serve Allah and His people. His leadership ensured that Islam remained strong and united after the Prophet ﷺ, and his example set the standard for all future Muslim rulers.

Death:

He ruled for two years and died peacefully in 634 AD at age 63 in Madinah. He was buried beside Prophet Muhammad ﷺ. His leadership saved Islam in a difficult time and established unity and stability.

Quran and Hadith about Abu Bakr (r.a):

Quran chapter 9 (Tawbah) verse no. 40:

إِذْ يَقُولُ لِصَاحِبِهِ لَا تَحْزَنْ إِنَّ اللَّهَ مَعَنَا

English: When he said to his companion, do not grieve; indeed Allah is with us.

Explanation and Background of Surah At-Tawbah, Verse 40:

This verse was revealed during the time when Prophet Muhammad ﷺ and his closest companion, Abu Bakr al-Siddiq (r.a), were migrating from Makkah to Madinah. The Quraysh leaders in Makkah had made a plan to kill the Prophet ﷺ, but Allah commanded him to leave Makkah secretly and travel to Madinah, where the Muslims were waiting for him. During this dangerous journey, the Prophet ﷺ was accompanied only by Abu Bakr (r.a). Both hid in a small mountain cave called Thawr (sawr) (غار ثور), located south of Makkah, for three days while the Quraysh searched everywhere for them.

When the enemies came very close to the cave, Abu Bakr (r.a) became worried — not for himself, but for the safety of the Prophet ﷺ. He whispered, “O Messenger of Allah, if one of them looks down, they will see us.” The Prophet ﷺ replied with full trust in Allah, saying: Do not grieve; indeed, Allah is with us. (لَا تَحْزَنْ إِنَّ اللَّهَ مَعَنَا)

This calm reassurance showed the Prophet's perfect faith and deep trust in Allah's protection. At that moment, Allah sent down His tranquillity (sakīnah) upon them and protected them from harm. According to many historical accounts, a spider built its web and a dove laid eggs at the cave's entrance, making the Quraysh think that no one had entered recently. Because of this divine protection, the Prophet ﷺ and Abu Bakr (r.a) were saved from danger.

After three days, they safely left the cave and continued their journey to Madinah, where the Prophet ﷺ would establish the first Islamic state. This verse reminds believers of the power of faith, patience, and trust in Allah, even in the darkest moments. It also highlights the honor of Abu Bakr (r.a), who was the Prophet's companion in one of the most critical moments of Islamic history.

The message of this verse is timeless — it teaches Muslims that true peace and courage come from trusting Allah, that Allah's help is always near, and that those who stand firm with faith will always be protected by Him.

Hadith:

The Prophet ﷺ said: 'If I were to take a close friend other than my Lord, I would have taken Abu Bakr as my friend.' (Bukhari, book 8, Hadith 466.)

Legacy:

Abu Bakr al-Siddiq (r.a) left behind a legacy of faith, leadership, and sincerity. He united the Muslims (after Prophet ﷺ), fought false prophets (Musaylima Kazzab), and preserved the Quran by compiling it into one book. He ruled with justice, humility, and compassion, always serving Islam with honesty and devotion. His strong faith, truthfulness, and complete trust in Allah made him a model for all Muslim leaders. He died in 634 AD and was buried beside the Prophet ﷺ in Madinah.

How Abu Bakr Got the Title of Siddiq:

The title **Siddiq** means **The Truthful One** or **The One Who Always Believes in the Truth**. He received this title after the famous event of **Isra and Mi'raj** — the miraculous night journey of the Prophet Muhammad ﷺ from Makkah to Jerusalem and then to the heavens in one night. When the Prophet told the people of Makkah about this miracle, many of them laughed and refused to believe him. They thought it was impossible to travel such a great distance in one night.

When people went to Abu Bakr and told him what the Prophet ﷺ had claimed, they expected him to doubt or deny it. But Abu Bakr (r.a) said calmly, “**If Muhammad ﷺ said this, then I believe it. He never lies.**” He believed in the Prophet's words without any hesitation, because he had full trust in his truthfulness and in Allah's power.

When the Prophet Muhammad ﷺ heard about Abu Bakr's immediate belief and strong faith, he gave him the title **Siddiq**. From that time onward, Abu Bakr became known as **Abu Bakr Siddiq**, meaning “Abu Bakr, the Truthful and the Believer in the Truth.”

Caliphate of Umar ibn al-Khattab (634–644 AD).

Full Name: Umar ibn al-Khattab. He was born in 584 AD in Makkah, from the Adi clan of Quraysh. His father was al-Khattab ibn Nufayl and his mother was Hantama bint Hisham. He accepted Islam at age of 27 and became one of its strongest supporters.

Umar was known for his justice, courage, and wisdom. During his caliphate, Islam spread rapidly to Persia, Syria, Egypt, and Iraq. He introduced many reforms, including the Islamic calendar, welfare system, public treasury (Bayt al-Mal), and courts of justice.

He lived a simple life, serving people directly and walking at night to ensure their well-being.

His Caliphate (Khilaafat):

He was the 2nd Caliph of Islam after Abu Bakr (r.a), his caliphate (khilaafat) last for around 10 years during 634 to 644 AD. It was one of the most remarkable and successful period in Islamic history. Under his wise and strong leadership, the Islamic empire expanded greatly — reaching Persia, Egypt, Syria, Palestine, and

parts of the Byzantine (Roman) and Sasanian (Zoroastrian) empires. These victories spread Islam's message of justice and equality to new lands.

He established a well-organized system of government based on the Qur'an and Sunnah. He introduced the Islamic calendar (Hijri), set up courts of justice, appointed judges and governors, and made sure public funds were distributed fairly. He was the first to create a welfare system for the poor, widows, and orphans, showing deep care for all people, Muslim and non-Muslim alike.

He personally inspected markets, streets, and public places to ensure honesty and safety. Umar (r.a) was known for his strict sense of justice — even the most powerful people could not escape punishment if they did wrong, despite ruling a vast empire, he lived very simply, wore ordinary clothes, and often slept on the ground, reminding everyone that a true leader serves his people, not himself.

During his time, cities like Basra and Kufa were established, and the empire's administration became strong and organized. Umar (r.a) also made treaties with non-Muslim citizens, granting them protection and rights. His rule became a model of good governance in Islam.

Death:

Umar ibn al-Khaṭṭāb (r.a) was attacked in the year 644 AD (23 hijri) while leading the Fajr (dawn) Salah in Masjid al-Nabawi, Madinah. He lived for three more days after the attack and passed away at the age of 63. He was stabbed multiple times by a Persian slave named Abu Lu'lu'ah al-Majusi (Firoz), who was living in Madinah. Abu Lu'lu'ah used a double-edged dagger during the Fajr (Salah) prayer, wounding Umar (r.a) and several others before killing himself.

The killer, Abu Lu'lu'ah, was a slave of al-Mughīrah ibn Shu'bah. He was upset about a dispute regarding a tax or work arrangement and held personal anger toward Umar (r.a). Some historians also mention that he had hatred for Islam and may have acted out of revenge for the Muslim conquest of Persia.

Umar (r.a) was carried home in great pain. Before passing away, he appointed a committee (Shūrā) of six companions to choose the next caliph — a sign of his fairness and concern for the Ummah's unity. He passed away three days later and was buried beside Prophet Muhammad ﷺ and Abu Bakr al-Siddiq (r.a) in the Prophet's Mosque in Madinah.

Hadith about Umar (r.a):

Hadith: The Prophet ﷺ said: 'If there were to be a prophet after me, it would have been Umar ibn al-Khattab.' (Tirmidhi, book 49, Hadith 3686).

Hadith: 'Allah has placed truth on Umar's tongue and in his heart.' (Tirmidhi, book 49, Hadith 3682).

Legacy:

He is Known as 'Al-Farooq' (The one who distinguishes truth from falsehood), Umar built a strong Islamic government and served with unmatched justice. His legacy is also justice, discipline, and equality among people. The Muslim community mourned deeply, as Umar (r.a) had ruled with unmatched justice, discipline, and

mercy. His death marked the end of one of the most powerful and righteous era in Islamic & whole world ruling history.

Caliphate of Uthman (Usman) ibn Affan (644–656 AD).

Full Name: Uthman (Usman) ibn Affan ibn Abi al-As. He was born in 576 AD in Makkah from the wealthy Umayyad clan. His father was Affan ibn Abi al-As and his mother was Arwa bint Kurayz. Uthman was gentle, kind, and generous.

He accepted Islam through Abu Bakr's invitation and married two daughters of the Prophet ﷺ, earning the title 'Dhul-Nurayn' (The Possessor of Two Lights).

As caliph, he expanded the empire and prepared one official written copy of the Quran distributed across the Muslim world to ensure unity. He faced criticism and rebellion from some groups, but remained patient and refused to fight fellow Muslims.

His Caliphate (Khilaafat):

He was the 3rd Caliph of Islam during 644 to 656 AD, after Umar (r.a). His Caliphate last for around 12 years & Ali (r.a) became the next Caliph. This caliphate was the longest among the four rightly guided caliphs. The first six years of his rule were peaceful, prosperous, and full of growth for the Muslim world. Under his leadership, the Islamic empire expanded widely — reaching North Africa, Cyprus, Armenia, and parts of Persia. The wealth and resources of the empire increased greatly, and trade, agriculture, and education flourished.

Uthman (r.a) is most famous for his great service in preserving the Holy Qur'an. During his time, the Qur'an was written in different dialects by Muslims from various regions, which caused confusion. To protect the purity of Allah's Book, he ordered the compilation of the Qur'an into one standard version in the Qurayshi dialect — the dialect in which it was originally revealed to the Prophet ﷺ. He then sent copies of this standard Qur'an to all the major Islamic cities. Because of this, the Qur'an we read today is exactly the same as in his time — a remarkable contribution that preserved Islam forever.

He was also known for his generosity and kindness. He donated huge amounts of his wealth to help the poor and support the Muslim army. He had financed the army during the Battle of Tabuk even before becoming caliph. As a ruler, he worked to develop new cities, improve water systems, and expand the Masjid al-Haram in Makkah and Masjid al-Nabawi in Madinah, to accommodate the growing number of worshippers.

However, during the later years of his rule, some people became greedy and jealous. False accusations and political unrest spread across the empire. Enemies of Islam created divisions among Muslims. Uthman (r.a) was too gentle and patient, refused to fight against his fellow Muslims, even when rebels surrounded his house in Madinah. Finally, in 656 AD, he was martyred while reciting the Qur'an, his blood falling upon the verse: *"So Allah will suffice you against them, and He is the All-Hearing, All-Knowing."* (Surah Al-Baqarah 2:137)

His martyrdom deeply saddened the entire Muslim world. He is remembered as a righteous, humble, and generous leader whose efforts preserved the Qur'an and strengthened the Islamic state. His caliphate was a time of expansion, prosperity,

and spiritual strength, and his patience in the face of injustice remains a timeless lesson for all believers.

Death:

In 656 AD, rebels surrounded his house in Madinah and killed him while he was reading the Quran. He died a martyr and was buried in Jannat al-Baqi.

Hadith about Uthman (r.a):

Hadith: The Prophet ﷺ said: 'Shall I not feel shy before a man whom even the angels feel shy of?' (Muslim, book 44, Hadith 2401).

Legacy:

Uthman ibn Affan (r.a) is remembered for his generosity, modesty, and great service to Islam. He expanded the Islamic empire to new lands and organized the government with wisdom and fairness. His most important contribution was the compilation of the Quran into one standard version, which preserved the holy book exactly as it was revealed. Uthman (r.a) spent his wealth for the sake of Allah, helping the poor and supporting the Muslim army. Despite facing rebellion and false accusations, he remained patient, gentle, and devoted to peace. His martyrdom while reading the Qur'an showed his deep love for Allah. Uthman (r.a) left behind a legacy of faith, sacrifice, and service, and is honored as one of the greatest caliphs in Islamic history. He is also known by another beautiful title: "Al-Ghani" (الغني), which means "The Generous" or "The Wealthy Giver." People of that time gave him this title because he was found helping Islam & people with his wealth many times.

Caliphate of Ali ibn Abi Talib (656–661 AD).

Full Name: Ali ibn Abi Talib ibn Abd al-Muttalib. He was born in 600 AD in Makkah. His father was Abu Talib and his mother was Fatimah bint Asad. He was the cousin and son-in-law of Prophet Muhammad ﷺ and the first young male of 10 years to accept Islam.

Ali was known for his bravery, wisdom, and justice. He ruled during a time of internal conflicts, including the Battle of Jamal and the Battle of Siffin. Despite challenges, he stood for truth and equality.

He tried to unite Muslims and remove corruption. His leadership was based on fairness and loyalty to Islamic principles.

His Caliphate (khilaafat):

Ali ibn Abi Talib (r.a) became the fourth Caliph of Islam in 656 AD and last till 661 AD, after the martyrdom of Uthman ibn Affan (r.a). His rule lasted for about five years and came during one of the most difficult and troubled times in Islamic history. The Muslim community was deeply divided after Uthman's death, and there was unrest and disagreement about how to deal with those responsible for the killing of Uthman (r.a). Despite these challenges, Ali (r.a) accepted leadership with great humility and sincerity, hoping to restore justice and unity among Muslims.

As caliph, Ali (r.a) ruled from Kufa in Iraq, which became the new capital of the Islamic state. He was known for his fairness, courage, and knowledge. He replaced corrupt governors and focused on restoring equality and honesty in government. He was deeply concerned about the welfare of the people, especially the poor and

orphans, and he taught that a ruler must be just and serve everyone, regardless of their status or wealth.

However, his caliphate was marked by internal conflicts and civil wars among Muslims. The first major conflict was the Battle of Jamal (Battle of the Camel), which was fought between Ali's forces and those led by Aisha (r.a), Talha (r.a), and Zubair (r.a), due to misunderstandings about how to handle the killers of Uthman (r.a). Later, another battle known as the Battle of Siffin took place between Ali (r.a) and Muawiya (r.a), the governor of Syria. Although both sides were sincere Muslims, the political tension led to bloodshed and great pain in the Ummah.

After these battles, a group called the Khawarij (Kharijites) rebelled against Ali (r.a) because they disagreed with his decision to negotiate peace. Even then, Ali (r.a) tried to bring justice and reconciliation. He taught his followers that true faith requires patience, forgiveness, and standing for truth even in hard times.

In 661 AD, while praying in the mosque of Kufa, he was fatally struck with a poisoned sword by a Kharijite named Abdur-Rahman ibn Muljam. He passed away two days later at the age of 63, the same age as Prophet Muhammad ﷺ. His death was a great loss to Islam, as he was one of the most knowledgeable and brave companions of the Prophet ﷺ.

He is remembered for his wisdom, justice, and spiritual insight. His sermons and letters, many preserved in Islamic literature, continue to teach lessons on leadership, equality, and moral strength. His rule showed that true leadership is not about power or wealth, but about truth, justice, and serving Allah.

Death:

In 661 AD, while praying in Kufa mosque, he was struck by Ibn Muljam, a member of the Kharijite sect. He died from his wounds and was buried in Najaf, Iraq.

Hadith about Ali (r.a):

Hadith: 'Whoever I am his master, Ali is his master.' (Tirmidhi, book 49, hadith 3713). There are many more hadith regarding him.

Legacy:

He left behind a legacy of wisdom, justice, and courage. He was known for his deep knowledge of the Quran, his strong faith, and his fearless defense of Islam from a young age. As the fourth caliph, he ruled with honesty and fairness, even during times of great conflict and division. Ali (r.a) taught people that true leadership means serving others and standing for truth, even when it is difficult. His speeches, letters, and sayings are still studied for their wisdom and spiritual guidance. He is remembered as the “Gate of Knowledge” and a symbol of bravery, piety, and justice.

Titles Given to Ali (r.a): Ali ibn Abi Talib (r.a) was given several noble titles that reflected his character and virtues:

Asadullah (دلّلا دسأ) – “*The Lion of Allah*”, this title was given to him because of his **bravery in battles** and his fearless defense of Islam. He fought with great courage in many battles such as **Badr**, **Uhud**, and **Khaybar**, where the Prophet ﷺ said: “Tomorrow I will give the flag to a man who loves Allah and His Messenger, and Allah and His Messenger love him.” The next day, the Prophet gave the flag to **Ali (r.a)**, and he led the Muslims to victory.

Karrar – “*The One Who Attacks Again and Again*”, this title also reflects his bravery and strength in battle. He never ran away from the battlefield.

Bab al-‘Ilm (بَابُ الْعِلْمِ) – “*The Gate of Knowledge*”, the Prophet ﷺ said: “I am the city of knowledge and Ali is its gate.” This means Ali was among the **most knowledgeable** companions, deeply understanding the Qur’an and Islamic teachings. Tirmizi hadith 3723 book no. 49.

Imam al-Muttaqeen – “*Leader of the Pious*”, because of his humility, justice, and devotion to Allah, he became an example for all believers.

Caliphate of Imam Hasan ibn Ali (661 AD).

Full Name: Hasan ibn Ali ibn Abi Talib. He was born in 625 AD in Madinah. He was the eldest grandson of Prophet Muhammad ﷺ through his daughter Fatimah and son-in-law Ali ibn Abi Talib. He grew up under the Prophet’s care and was loved dearly by him.

After the martyrdom of his father Ali (r.a), Imam Hasan (r.a) became the fifth caliph. His leadership lasted about six months. Faced with divisions among Muslims and pressure from Muawiya ibn Abi Sufyan, Imam Hasan chose peace over war. He made a peace treaty to protect the unity of the Muslim Ummah.

His Caliphate (Khilaafat):

After the martyrdom of his father, Ali ibn Abi Talib (r.a), in 661 AD, Imam Hasan ibn Ali (r.a), the beloved grandson of Prophet Muhammad ﷺ, became the fifth Caliph of Islam. He was chosen by the people of Kufa (in Iraq) and accepted as leader by many Muslims. Imam Hasan (r.a) was known for his gentle nature, deep knowledge, and strong faith, but his time as caliph was very short — lasting about six to seven months.

At that time, the Muslim community was suffering from great division. Many people supported Imam Hasan (r.a) as the rightful caliph, while others supported Muawiya ibn Abi Sufyan (r.a), the governor of Syria, who had a strong army and large following. Both sides prepared for war, and Muslims were on the verge of another major conflict. However, Imam Hasan (r.a), remembering the suffering caused by previous civil wars, did not want more bloodshed among believers.

With great wisdom and sincerity, Imam Hasan (r.a) chose to make peace with Muawiya (r.a) instead of fighting. He signed a peace treaty that gave the caliphate to Muawiya (r.a) under certain conditions — that he would rule according to the Qur’an and Sunnah and that no one would be chosen as successor after him without consultation. This wise and selfless act brought unity to the Muslim Ummah and ended years of civil war. Because of this, Imam Hasan (r.a) is often called the “Prince of Peace” in Islamic history.

After stepping down, Imam Hasan (r.a) moved to Madinah, where he lived a quiet and simple life devoted to worship, teaching, and serving people. He was known for his generosity, forgiving nature, and patience. Sadly, in 670 AD (50 hijri), he was poisoned by a political plot — most reports say it was through someone close to him who had been deceived by the enemies of Islam. He was buried in Jannat al-Baqi cemetery in Madinah beside his mother, Fatimah (r.a).

Death:

Imam Hasan lived quietly in Madinah after giving up the caliphate. In 670 AD, he was poisoned and died at age 45. He was buried in Jannat al-Baqi cemetery.

Hadith about Imam Hasan (r.a):

1. Narrated Sahl bin Saad: I saw the Prophet ﷺ sitting on the pulpit while al-Ḥasan bin Alī was sitting beside him. The Prophet ﷺ was addressing the people, and at one time he looked towards them and at another time he looked towards al-Ḥasan, and said:

“This son of mine is a chief (sayyid), and perhaps Allah will bring reconciliation through him between two great groups of the Muslims.” Bukhari Hadith: 2704 & 3746.

The Prophet Muḥammad ﷺ foretold in an authentic ḥadīth (Ṣaḥīḥ al-Bukhārī 2704 & 3746) that his grandson al-Ḥasan ibn Alī (r.a) would be a great leader and that Allah would use him to bring reconciliation between two large groups of Muslims. This prophecy came true after the martyrdom of his father, Imām Alī (r.a), in 40 Hijri / 661 AD. Al-Ḥasan (r.a) became caliph in Kūfa (Iraq), while Mu‘āwiyah ibn Abī Sufyān (r.a), the governor of Syria, had strong support and refused to give allegiance. To avoid further bloodshed and division within the Muslim community, al-Ḥasan (r.a) chose to abdicate the caliphate in favor of Mu‘āwiyah (r.a). This act of selflessness united the Muslims under one ruler and ended the conflict that could have turned into a destructive civil war. The year of this event, 41 Hijri / 661–662 AD, is remembered in Islamic history as Ām al-Jamā‘ah (The Year of Unity). Historians such as Ibn Kathīr, al-Ṭabarī, and Ibn Ḥajar al-‘Asqalānī all mention this as the exact fulfillment of the Prophet’s prophecy, highlighting the wisdom and foresight of al-Ḥasan (r.a) in prioritizing unity and peace over personal power.

2. The Prophet ﷺ said: 'Hasan and Husain are the leaders of the youth in Paradise.' (Tirmidhi, book 49, Hadith 3768).

Legacy:

Imam Hasan ibn Ali (r.a) is remembered for his wisdom, patience, and love for peace. As the beloved grandson of Prophet Muhammad ﷺ, he carried the Prophet’s noble character, kindness, and humility. When he became caliph after his father Ali (r.a), he chose peace over conflict by making a treaty with Muawiyah (r.a), ending the civil war among Muslims. This wise decision protected the Ummah from more bloodshed and showed his deep concern for unity and brotherhood. Imam Hasan (r.a) taught that real strength lies in forgiveness and self-control. His legacy is one of peace, compassion, and devotion to Allah, and he is honored as a leader who sacrificed power for the sake of Muslim unity.

Imam Hasan (r.a) also left behind a legacy of peace, forgiveness, and unity. His decision to give up power for the sake of saving Muslim lives showed true courage and love for the Ummah. His actions fulfilled the Prophet’s ﷺ prophecy that his grandson would bring peace between two groups of Muslims. Imam Hasan (r.a) is remembered not as a ruler who sought power, but as a leader who sacrificed power to protect the faith and unity of Islam.

The Umayyad caliphate (Umayya) (الْخِلَافَةُ الْأُمَوِيَّةُ) (661-750 AD).

The Umayyad Caliphs (Umayyaa Khilaafat) (661–750 AD) were the first great Muslim dynasty after the Rightly Guided Caliphs (caliphate Raashida). They ruled from Damascus, Syria and expanded the Islamic empire to the largest it had ever been, stretching from Spain in the west to India in the east (Indian subcontinent) (Sindh). The Umayyads made Arabic the official language and developed strong administration and trade. However, they were often criticized for living luxuriously and favoring their own family. In 750 AD, the Abbasids defeated them, ending their rule though one branch continued ruling in Spain as Córdoba Caliphate (Qurṭubah قرطبة khilaafat) from 756 to 929 AD as Emirates (Amir) & in 929 they became caliph & declared their caliphate in Spain & their caliphate remained till 1031 AD in Spain (929-1031 AD).

The Umayyad Caliphate started in 661 AD when Muāwīya ibn Abī Sufyān became caliph after the peace treaty with Ḥasan ibn Ali (r.a). They ruled from Damascus, Syria, and their dynasty lasted until 750 AD.

They expanded the Islamic empire to three continents; made Arabic the official language, introduced a common currency, built beautiful mosques Qubbat al-Sakhra (قبة الصخرة) (the Dome of the Rock in Jerusalem), al-Masjidu al-Umawiyyū bi-Dimashq (المسجد الأموي بدمشق) (the Great Mosque of Damascus) and created an organized system of government. They were strong builders and expanders of the empire.

But they were often seen as turning the caliphate into a kingdom, favoring their family over others, living in luxury and sometimes being unjust to non-Arab Muslims. These issues caused rebellions and dislike among many groups, which led to their downfall. Their love for power and wealth weakened their rule.

List of caliphs of the Umayyad Caliphate:

1. Mu‘āwīya I (مُعَاوِيَةُ الْأَوَّلُ) (661–680 AD): He was founder of the Umayyad dynasty, made Damascus the capital, and started the practice of passing rule to family (hereditary caliphate).
2. Yazid I (يَزِيدُ الْأَوَّلُ) (680–683 AD): He was son of Mu‘āwīya & he is remembered for the tragic event of Karbala where Imam Husain (r.a) (grandson of Prophet ﷺ) was martyred.
3. Muāwīya II (مُعَاوِيَةُ الثَّانِي) (683–684 AD): He ruled only a short time, very young and weak, died early.
4. Marwān I (مَرْوَانُ الْأَوَّلُ) (684–685 AD): He was a senior leader who saved the dynasty during civil war.
5. Abdul Malik (عَبْدُ الْمَلِكِ) (685–705 AD): He was a strong ruler; made Arabic the official language, built Qubbat al-Sakhra (قبة الصخرة) (the Dome of the Rock in Jerusalem) and issued a single Islamic coin system.
6. Al-Walīd I (الْوَلِيدُ الْأَوَّلُ) (705–715 AD): He expanded the empire greatly (into Spain, Central Asia, and India). In his period al-Masjidu al-Umawiyyū bi-Dimashq (المسجد الأموي بدمشق) (the Great Mosque of Damascus) was built.
7. Sulaymān (سُلَيْمَانُ) (715–717 AD): He had a short rule, tried to strengthen family control, began the siege of Constantinople (Istanbul) (Byzantine capital).

8. Umar II (عُمَرُ الثَّانِي) (717–720 AD): Umar ibn Abd al-Aziz ibn Marwan (عُمَرُ بْنُ عَبْدِ الْعَزِيزِ بْنِ مَرْوَانَ), He was known as a just and pious caliph, sometimes called the fifth rightly guided caliph. Treated non-Arabs more fairly and encouraged Islamic values. He is still remembered & respected for his good qualities.
9. Yazid II (يَزِيدُ الثَّانِي) (720–724 AD): He was known for religious policies, but his rule was troubled by unrest.
10. Hishām (هَشَامٌ) (724–743 AD): He had a long and stable rule, patron of learning, but faced revolts near the end.
11. Al-Walīd II (الْوَلِيدُ الثَّانِي) (743–744 AD): He was seen as corrupt and luxurious, lost respect.
12. Yazid III (يَزِيدُ الثَّالِثُ) (744 AD): He had a very short rule, wanted reforms but died soon.
13. Ibrahim (إِبْرَاهِيمُ) (744 AD): He ruled only for a few months.
14. Marwān II (يَزِيدُ الثَّالِثُ) (744–750 AD): He was the last Umayyad caliph, a strong soldier but defeated by the Abbasids in 750 AD.

The Córdoba Caliphate (Qurṭubah قرطبة khilaafat) a branch of Umayya khilaafat:

After the defeat of Umayyad caliphate (Umayya) (الْخِلَافَةُ الْأُمَوِيَّةُ) against Abbasid caliphate (Abbasi Khilaafat) in 750 AD, in areas all around Iraq (Damascus). But one surviving Umayyad prince, Abdul-Raḥmān I, escaped to Spain (al-Andalus) in 756 AD. They made Córdoba (Spain) independent from the Abbasid Caliphate and the Fatimid Caliphate in North Africa, and set up an independent Umayyad Emirate in Córdoba (not a caliphate yet) from 756 to 929 AD in Spain (Córdoba).

Later descendants of Ummaya caliphate in 929 AD, Abdul-Raḥmān III declared himself Caliph in Córdoba, making the Córdoba Caliphate (Qurṭubah قرطبة khilaafat); starting from 929 to 1031AD.

Today, Córdoba is a city in southern Spain, in the region of Andalusia. Córdoba was the capital city of the Córdoba Caliphate. Córdoba (the capital city) became one of the richest and most advanced cities in the world, known for: Its universities and libraries, beautiful architecture (like the Great Mosque of Córdoba) & advances in science, philosophy, and medicine. The Córdoba Caliphate lasted until 1031 AD, when it split into many smaller kingdoms called Taifas. This marked the end of Cordoba caliphate (a branch of descendants of Ummaya Khilaafat).

The Abbasid Caliphate (750-1258 AD).

Introduction:

The Abbasid Caliphate (750-1258 AD) was the third major caliphate in Islamic history after Umayyads (الْخِلَافَةُ الْأُمَوِيَّةُ) caliphate in region around Iraq. The Abbasid caliphate was founded in 750 AD by Abdul Abbās al-Saffāḥ after overthrowing the Umayyad caliphate. The name Abbasi got from Abbās ibn Abd al-Muṭṭalib, uncle of Prophet Muhammad ﷺ. Its capital was first Kufa, then Baghdad (762 AD), which became a center of culture and science. The Abbasid caliphate lasted in Baghdad until 1258 AD, when the Mongols sacked the city, then continued in Cairo (1261–1517 AD) under the Mamluk sultanate (not caliphate).

The Abbasids were one of the greatest empires in Islamic and world history, it is known as the Golden Age of Islam due to the progress in science, philosophy, trade, and culture, but due to political struggles & wars, decline took place.

Initial Period (750–850 AD) The Rise:

The Abbasids came to power by claiming descent from the Prophet's family (Ahle Bait) and by gaining support from non-Arab Muslims (mawālī), Persians, and Shia groups. They moved the capital from Damascus to Baghdad, near the Persian influence zone, making it a global center. Caliph al-Mansūr (754–775 AD) built Baghdad as the City of Peace. Caliph Hārūn al-Rashīd (786–809 AD) brought the empire to luxury and cultural brilliance; the fairy tales called as One Thousand and One Nights, also called as Alf Laylah wa-Layla (The Arabian Nights) was compiled in Arabic in this period. Caliph al-Ma'mūn (813–833 AD) established the Bayt al-Ḥikmah (House of Wisdom) for translations and science. This era was of unity, prosperity, and military strength.

Middle Period (850–1050 AD) – Golden Age and Challenges:

Abbasids faced political fragmentation: provinces like North Africa, Spain, and Egypt became semi-independent.

The Golden Age was period of science, research, medical science, study of geometry, history, maths, astronomy, books & text writing, language learning, translation of books & text into Arabic & other languages; experiments & manufacturing of machines, clocks making, distillation (perfumes), chemistry, learning & study on Quran, hadiths, Islam, philosophy etc. Translations of Greek works of Aristotle, Galen, and Ptolemy preserved world knowledge. Main was language learning which brought the resolution in science, exchange of ideas, learning from old text, researching on the old text, ideas, to filter it with mistakes & replace it with new ideas, experiments & facts.

Lots of Islamic scholars worked, learned & researched, wrote books, translated books etc in this golden period. Thus Baghdad became the largest city in the world (over 1 million population) because lot of people around came to study in Baghdad & lot of schools, learning institutes & universities were built for people to come & study; people from all religion & region came to study. Further in this book about Islamic scholars, chapters are written, go on reading & learn.

But political weakness grew: local dynasties like the Samanids, Buyids, Fatimids reduced Abbasid control. Caliphs lost power to viziers (chief ministers) and military commanders brought their period of decline & fall.

Later Period (1050–1258 AD) – Decline and Fall:

Abbasids became ceremonial rulers, while Seljuk Turks and other dynasties ruled in practice. Caliph al-Nāṣir (1180–1225 AD) tried to restore some authority. Cultural brilliance continued, but the empire was politically fractured. In 1258 AD, the Mongols (buddhist) under Hülegü Khan invaded Baghdad. The city was destroyed, thousands of people were killed and the last Abbasid caliph in Baghdad, al-Musta'ṣim, was executed.

Cairo Period (1261–1517 AD) – Symbolic Survival:

After 1258 AD, the Abbasids were re-established in Cairo by the Mamluk Sultanate. They had no real political power, serving as spiritual and religious figureheads. In

1517 AD, the Ottoman (Usmaniya) Turks conquered Egypt and transferred the caliphate to Istanbul.

Contributions to Science, Knowledge, and World Civilization in Abbasid caliphate:

Science and Mathematics:

Algebra, geometry, trigonometry, and astronomy advanced by al-Khwārizmī, al-Bīrūnī, al-Battānī. Al-Khwarizmi was called Algorithmi in Latin, later the subject was called as Algorithm because of his contribution in this subject.

Medicine:

Ibn Sīnā's book Al-kanoon fi-tibb (Canon) and al-Rāzī's work became medical text books in Europe. Hospitals (bīmāristāns) were established in Baghdad and Damascus.

Philosophy and Theology:

Mu'tazilite theology encouraged reason and rationalism; later thinkers like al-Ghazālī criticized Greek philosophy but integrated it into Islamic thought. Averroes (Ibn Rushd, ibn-Sina, Al-Farabi etc) influenced Europe's Scholastic philosophy.

Literature and Arts:

Arabic poetry, calligraphy, and architecture flourished. Baghdad and Samarra became centers of art, carpets, ceramics, and manuscripts. Storytelling: Alf Layla wa-Layla (One Thousand and One Nights) reflects Abbasid cultural imagination.

Trade and Economy:

Abbasids controlled the Silk Road and Indian Ocean trade. Baghdad became a hub linking China, India, Africa, and Europe. They developed coins system (dinars, dirhams) standardized trade.

Political Status, Wars, and Power:

In early period Abbasids caliphate was strong. Middle period of Abbasids caliphate became decentralized, provinces gained autonomy (ruling) resulting in war against Byzantines & civil wars (al-Amīn vs. al-Ma'mūn).

Teachings, Beliefs, and Thought:

They promoted Islam as a universal religion beyond Arab ethnicity. Supported translation movement & showed belief in universal knowledge. Abbasid courts hosted scholars of all faiths: Muslims, Christians, Jews, Zoroastrians.

Weaknesses and Decline reasons:

The following reasons were the main reason for their decline, over-reliance on foreign soldiers (Turks, Persians), Over-dependence on non-Arab mercenaries, political fragmentation and corruption. Luxury and court intrigues weakened rulers, civil wars, religious conflicts between rationalists and traditionalists, harsh punishments in political rivalries. Lastly the Mongol invasion ended the Abbasid golden center (Baghdad) in 1258 AD.

Fatimid Caliphate (Fatimi Khilaafat) (909–1171 AD).

The Fatimids (Fatimi Khilaafat) were Ismaili Shia dynasty (Ismaili Shias are who follows Aga Khan) that started in North Africa in 909 AD. They claimed descent from Fatimah (r.a), the daughter of Prophet Muhammad ﷺ, hence the name "Fatimid." Their first capital was in Mahdia (Tunisia) and later they moved to Cairo (al-Qahira) in 969 AD, which they founded. The Fatimids were rivals of the Sunni Abbasid Caliphate in Baghdad and wanted to spread their sect of Islam. The Fatimids (Fatimi Khilaafat) ruled Egypt, North Africa, parts of Syria, Yemen, and even controlled Mecca and Medina for some time. They were strong in trade and had a powerful navy, even reaching Sicily. They are remembered for building the al-Azhar Mosque and University, which became a great center of Islamic learning. Over time, their empire became weak due to internal conflicts and Crusader pressure. Finally, in 1171 AD, Ṣalāḥ al-Dīn (Salahuddin Ayyubi) ended the Fatimid Caliphate in Egypt and restored Sunni Abbasid allegiance.

Seljuk Sultanate (سُلْطَنَةُ السَّلَاجِقَةِ) (1037–1194 AD).

The Seljuks (سُلْطَنَةُ السَّلَاجِقَةِ) (Sultanat-e-Asslaajiq) were a Hanafi-Sunni Turkish dynasty that began in Central Asia and later moved into Persia and the Middle East. They took power around 1037 AD and soon controlled a vast empire, including Persia, Iraq, Syria, and Anatolia (Turkey). They were defenders of Sunni Islam and supported the Abbasid caliphs in Baghdad, ruling in their name. Their most famous sultans were Alp Arslan and Malik Shah.

The Seljuks are remembered for defeating the Byzantine Empire (eastern Roman Empire) at the Battle of Manzikert (1071), as the Seljuks won; this victory opened the way for Muslims (especially the Turks) to enter and settle in Anatolia (modern-day Turkey).

They also encouraged Islamic scholarship and architecture, building madrasas (schools) and mosques. Over time, the empire broke into smaller states due to internal struggles and Crusader invasions. By 1194 AD, the main Seljuk power declined, but their legacy continued through later Turkish and Persian dynasties.

Almoravid Dynasty (دَوْلَةُ الْمُرَاطِينِ) (1040–1147 AD).

The Almoravid Dynasty (Daulatul Muraabiteen) (دَوْلَةُ الْمُرَاطِينِ) was a Berber Muslim dynasty that was raised in North Africa (Mauritania and Morocco) around 1040 AD. They were known for their strict religious views and efforts to spread Islam among desert tribes. They moved into Morocco and Spain (al-Andalus), becoming defenders of Islam in the region. It was not a caliphate but a dynasty.

In Spain, the Almoravids helped stop Christian advances when Muslim states were weak. They built Marrakesh as their capital and made it a center of trade and culture. However, they became unpopular for their strictness and were eventually replaced by the Almohads. Still, they played an important role in keeping Muslim Spain alive during a time of danger from Christian kingdoms. They were Maliki-Sunni Muslim, followed strict Maliki fiqh (Islamic law). Its founder was a Berber scholar-warrior Abdullah ibn Yāsīn and later led by Yūsuf ibn Tāshfīn.

They began as a religious reform movement among the Berber tribes of North Africa. It became a strong empire controlling trade routes of gold and salt across the Sahara. Famous for crossing into Spain (al-Andalus) to help Muslims fight the Christian kingdoms of the north. In the battle of Zallaqa (1086 AD): Yūsuf ibn Tāshfīn defeated the Christian King Alfonso VI of Castile. But they were later replaced by

another Berber dynasty, the Almohads, in 1147 AD but they could not form a caliphate (Khilaafat).

Almohad Dynasty (الْمُوَحِّدُونَ) (al-Muwaḥḥidūn) (1121–1269 AD).

The Almohads followed after the Almoravids. They were also Berbers from North Africa but had even stricter religious beliefs. They rose in 1121 AD under their leader Ibn Tumart, who declared himself the Mahdi. They took over Morocco and then expanded into Spain and North Africa. They were neither Shia nor Maliki in fact they were against both; they were Al-Muwahhidun (strong in tawhid believe, oneness of Allah). It was not caliphate, it was a dynasty.

The Almohads ruled from Marrakesh and controlled a huge empire, including much of Muslim Spain. They encouraged learning and built strong fortresses and mosques. But they faced strong opposition from Christian kingdoms in Spain. Their defeat at the battle of Las Navas de Tolosa (1212 AD) was a major blow, and gradually their empire weakened. By the late 1200s, the Almohads were replaced by smaller dynasties and only Granada Emirates remained in Spain.

Ayyubid Sultanate (السَّلْطَنَةُ الْأَيُّوبِيَّةُ) (Saltanat-e-Ayyūbiyyah) (1171–1250 AD).

The Ayyubid Sultanate (السَّلْطَنَةُ الْأَيُّوبِيَّةُ) (Saltanat-e-Ayyūbiyyah) was founded by Ṣalāḥ al-Dīn Yūsuf ibn Ayyūb (Salahuddin Ayyubi) in 1171 AD after he ended the Fatimid Caliphate in Egypt. He was of Kurdish origin and became famous for his victory over the Crusaders (Christian worriers of Europe). His greatest achievement was the Battle of Ḥaṭṭīn (1187), where he defeated the Crusaders and recaptured Jerusalem for the Muslims. They were Kurdish Sunni Muslims, promoted all 4 Sunni groups Hanafi, shafi, Maliki & Hambali but Salahuddin himself & most of his associates were Shafi. It was not caliphate but was sultanate.

The Ayyubids ruled Egypt, Syria, Yemen, and parts of Iraq. They were known for their fairness, military skill, and support for Islamic learning. Salahuddin and his successors built schools, mosques, and hospitals. After Salahuddin's death, the Sultanate continued but eventually became weaker. In 1250 AD, the Mamluks, who were their former soldiers, took power in Egypt, ending the Ayyubid rule there. The Mamluks supported Abbasid caliphate when they lost to Mongol in 1250 AD.

The Mongols.

In 1258 AD, the Mongols under Hulagu Khan invaded Baghdad, the capital of the Abbasid Caliphate. They destroyed the city, burned libraries, killed thousands of people, and ended the rule of the Abbasid caliphs in Baghdad. This attack was one of the most shocking events in Islamic history, as Baghdad was the center of knowledge, culture, and power at that time. After the invasion, Baghdad never returned to its old glory.

The Mongols ruled over Baghdad and much of the region until 1260 AD, when they were stopped at the Battle of Ain Jalut (معركة عين جالوت) (Ma'rakat 'Ayn Jālūt) in Palestine on 3rd September 1260 AD by the Mamluks of Egypt. This was the first big defeat of the Mongols, and it saved the rest of the Muslim world from total destruction. Later, the Abbasid family re-established a symbolic caliphate in Cairo, under the protection of the Mamluks, but the true political power remained with the Mamluks.

The Mongols attacked and captured Baghdad in 1258 AD under the command of Hulagu Khan, the grandson of Genghis Khan. This event marked the tragic end of the Abbasid Caliphate in Baghdad, which had been the heart of the Islamic world for over five centuries. The Mongols destroyed the city, killed a large portion of its population, and executed the last Abbasid Caliph, al-Musta'sim Billah. After this

conquest, the Mongols did not immediately leave; instead, they established their rule over large parts of the Islamic world, particularly in **Persia (Iran)** and **Iraq**.

Hulagu Khan founded the **Ilkhanate dynasty** in 1256 AD, which ruled over Persia, Iraq, and parts of Anatolia. The Ilkhanate became a major Mongol Muslim dynasty that governed these Islamic regions for nearly **eighty years**, until around **1335 AD**, when the dynasty finally collapsed due to internal conflicts and lack of a strong successor. During this period, several Mongol rulers adopted Islam, with **Ghazan Khan (1295–1304 AD)** being the most famous for making **Islam the official religion** of the Ilkhanate. As a result, the Mongols gradually integrated into Islamic civilization and became patrons of Islamic culture, art, and learning.

In **Central Asia**, Mongol control lasted even longer under the **Chagatai Khanate**, which ruled from around **1225 to 1370 AD**. Over time, the rulers of this region also embraced Islam, blending Mongol and Islamic traditions. However, in **Syria** and **Egypt**, the Mongols failed to establish lasting control. They were defeated in **1260 AD** by the **Mamluks of Egypt** at the famous **Battle of Ayn Jalut**, which stopped Mongol expansion into the western Islamic world.

In summary, the Mongols remained in Islamic countries for about **80 years after the fall of Baghdad**, ruling primarily through the Ilkhanate in Iran and Iraq until around **1335 AD**. In broader regions such as Central Asia, Mongol rule continued for nearly **a century and a half**. Although their initial invasion brought massive destruction, the later Mongol rulers contributed significantly to the spread of Islam and the revival of learning and culture in the Islamic world.

Summary Table:

Region	Mongol Dynasty	Period of Rule	Duration	Notes
1. Iraq & Iran	Ilkhanate	1256–1335 CE	80 years	Mongol rulers later became Muslims
2. Central Asia	Chagatai Khanate	1225–1370 CE	145 years	Gradual Islamization
3. Syria	Brief invasion	1260 CE	<1 year	Defeated by Mamluks

The Mamluk Sultanate (سلطنة المماليك) (Salṭanat al-Mamālīk) (1250-1517 AD).

The Mamluks (Mumalik) (1250-1517 AD) were originally slave soldiers from Central Asia and the Caucasus who were trained as warriors in the Muslim world. Over time, they became very powerful in Egypt and Syria. In 1250 AD, they took control and started the Mamluk Sultanate. They are famous for saving the Muslim world when they defeated the Mongols at Ayn Jalut in 1260 AD under Sulṭān Qutuz (سُلْطَانُ قُطُزْ) and later ruled strongly under Sulṭān Baybars (سُلْطَانُ بَيْبَارْسْ). It was not caliphate (khilafaat) but was Sultanate.

The Mamluk period is usually divided into two parts: the Baḥrī Mamluks (1250-1382 AD) (الْمَمَالِيكُ الْبَحْرِيُّونَ), who were mostly of Turkish origin, and the Burjī or Circassian Mamluks (1382-1517 AD) (الْمَمَالِيكُ الْبُرْجِيُّونَ), who were mainly from the Caucasus (border of Asia & Europe). They ruled for almost 267 years. During their time, Cairo (in Egypt) became a center of Islamic learning, architecture, and trade. They built great mosques, maktab and even protected the holy cities of Makkah and Madinah.

But the Mamluks also had weaknesses; they often fought among themselves, killed each other to become sultan and imposed heavy taxes on ordinary people. This weakened their rule over time. In 1517 AD, they were finally defeated by the Ottoman Sultan (دَوْلَةُ عُثْمَانِيَّةٍ) under Salīm al-Awwal (سُلْطَانُ سَلِيمُ الْأَوَّلِ) the Ottoman Sultan and Egypt became part of the Ottoman Empire.

They had brave soldiers & were defenders of Islam, built schools, mosques, hospitals, supported scholars. But too much fighting for power, short reigns of many sultans, heavy taxes, cruelty at times led to declined them

The Mamluks were their former soldiers of Ayyubi Sultanate. The Mamluk Sultanate started in 1250 AD in Egypt when the slave soldiers (called Mamluks) took power after the end of the Ayyubid dynasty. (The Ayyubids were Kurdish-origin, Sunni Muslim dynasty that ruled in Egypt, Syria, and the Yemen from 1171 to 1341, founded by Sulṭān Ṣalāḥ al-Dīn ibn Ayyub (سُلْطَانُ صَلَاحُ الدِّين) (Salahuddin) (founder of Ayyubids before Mamluks). Mamluks gain in Baghdad at 1250 AD though they were in power in Yemen, Syria & Egypt since 1171 AD.

List of Mamluk rulers from 1250-1517 AD in Baghdad:

Baḥrī Mamluks was from 1250-1382 AD (الْمَمَالِكُ الْبَحْرِيُّونَ)

Burjī (Circassian) Mamluks (1382-1517 AD) (الْمَمَالِكُ الْبُرْجِيُّونَ)

Baḥrī Mamluks:

1. Sultana Shajar al-Durr (1250 AD) (شَجَرُ الدُّرِّ), first woman ruler, short reign
2. Sultan Aybak (سُلْطَانُ أَيُّبَك) (1250-1257 AD) first male ruler of Mamluks.
3. Sultan al-Mansur Ali (سُلْطَانُ الْمَنْصُورِ عَلِي) (1257-1259 AD) short & weak rule.
4. Sultan Qutuz (سُلْطَانُ قُطُز) (1259-1260 AD) – defeated Mongols at Ain Jalut.
5. Sultan Baybars (سُلْطَانُ بَيْبَارِس) (1260-1277 AD) He was a strong ruler, expanded empire.
6. Sultan Barakah (سُلْطَانُ بَرَكَه) (1277-1279 AD) short & weak rule.
7. Sultan Qalāwūn (سُلْطَانُ قَلَاوُون) (1279-1290 AD) Strong new dynasty.
8. Sultan al-Ashraf Khalīl (سُلْطَانُ الْأَشْرَفِ خَلِيل) (1290-1293) took Acre city from enemies in 1291 AD. He was murdered by his emirs, who were alarmed by his ambition.
9. Sultan al-Nāṣir Muḥammad (سُلْطَانُ النَّاصِرِ مُحَمَّد) (1293-1341 AD), long reign, cultural growth took place.
10. 3 sons of al-Nasir Muhammad ruled for few months (each) (1341-1342 AD)
11. Sultan al-Kamil Sha‘ban (1345–1346 AD): Very short reign.
12. Sultan al-Muzaffar Hajji (1346–1347AD): Deposed after only a year.
13. Sultan al-Nasir Hasan (1347–1351 AD): (first time) tried to restore order, but was removed.
14. Sultan al-Salih Salih (1351–1354 AD): Weak ruler.
15. Sultan al-Nasir Hasan (1354–1361 (second time again came to rule): Restored to throne, stronger rule, but assassinated.
16. Sultan al-Mansur Muhammad (1361–1363 AD): Child ruler, easily controlled by emirs.
17. Sultan al-Ashraf Sha‘ban (1363–1377 AD): Long reign, but faced internal corruption.
18. Sultan al-Mansur Ali (1377–1381 AD): Son of Sha‘ban, weak and young.
19. Sultan al-Salih Hajji (1381–1382 AD): Last Bahri Mamluk ruler. He was overthrown by Sultan Barquq (1382 AD), who began the Burjī (Circassian) dynasty.

Burjī (الْمَمَالِكُ الْبُرْجِيُّونَ) (Circassian) Mamluks (1382-1517):

1. Sultan Barqūq (سُلْطَانُ بَرْقُوق) (1382-1389 AD): He was founder of Circassian line.
2. Sultan Hajji II (1389–1390 AD): restored briefly, weak.
3. Sultan Barqūq (سُلْطَانُ بَرْقُوق) (1390-1399 AD): again to power
4. Sultan Faraj ibn Barqūq (سُلْطَانُ فَرَجِ بْنِ بَرْقُوق) (1399-1412 AD)
5. Sultan al-Mu‘ayyad Shaykh (1412–1421 AD): restored stability.
6. Sultan al-Muzaffar Ahmad (1421 AD): short reign, a child

7. Sultan al-Ashraf Barsbāy (سُلْطَانُ الْأَشْرَفِ بَرْسَبَايَ) (1422-1438 AD): During his period trade expanded.
8. Sultan Jaqmaq (1438–1453 AD): known for administrative reforms & architecture. He had a stable reign.
9. Sultan Inal (1453–1461 AD): built many masjids, schools & did charitable work.
10. Sultan Khushqadam (1461–1467 AD): His reign had internal & external problems, but hold the throne for 6 years anyhow.
11. Sultan Yalbay (1467 AD): (short reign, less than a year)
12. Sultan Timurbugha (1467–1468 AD): ruled a few months.
13. Sultan Qāytbāy (سُلْطَانُ قَايْتَبَايَ) (1468-1496 AD): He was a great builder & a strong ruler.
14. Sultan Muhammad ibn Qaytbay (1496–1498 AD): weak, son of Qaytbay.
15. Sultan Qansuh Abu Sa'id (1498 AD): ruled a few months only.
16. Sultan Tuman Bay I (1501 AD) (ruled briefly, deposed)
17. Sultan Qānṣūh al-Ghawrī (سُلْطَانُ قَانْصُوهُ الْغَوْرِي) (1501-1516 AD) He was the last strong Mamluk ruler.
18. Sultan Tūmān Bay II (سُلْطَانُ ثُومَانْ بَايَ الثَّانِي) (1516-1517 AD) CE, He was the last ruler & got defeated by Ottomans in 1517 AD, the Ottoman Sultan Salīm al-Awwal (سُلْطَانُ سَلِيمُ الْأَوَّلِ) defeated the Mamluks and ended their rule.

The Ottoman Empire (Usmaniya) (دَوْلَةُ عُثْمَانِيَّةٍ) (1299-1924 AD).

The Ottoman Empire (1299-1924 AD) (دَوْلَةُ عُثْمَانِيَّةٍ) began in 1299 AD when Uthmān ibn Ertuğrul (عُثْمَانُ بْنُ أَرْتُغْرُلْ) founded a small state in Anatolia (Turkey). His followers were called Uthmāniyyūn (عُثْمَانِيُّونَ), from which the word “Ottoman” comes. Over time, the Ottomans grew powerful, capturing lands from the Byzantine (Roman) Empire and other Muslim rulers. Initially they were not as caliphate & in 1517 AD they defeated Mamluks & declared their caliphate & last till 1924 AD. Ottoman Empire was Hanafi-Sunni. So in 1299 to 1517 AD, they were as an Empire & 1517-1924 AD declared caliphate after defeating the Mamluks.

In 1453 AD, under Sulṭān Muḥammad al-Fātiḥ (سُلْطَانُ مُحَمَّدٍ الْفَاتِيحِ), they conquered Constantinople (Istanbul), ending the Byzantine (Roman) Empire. Istanbul became the new capital & an important center of Islam, trade, culture, and learning. The Ottomans also protected the holy cities of Makkah (مَكَّةُ) and Madinah (مَدِينَةُ) and expanded across Europe, Asia, and Africa. At its height (16th–17th century), the Ottoman Empire ruled large parts of three continents.

They had a very strong military (Janissaries – جَنِيْسَارِيُونُ); they were great builders & built masjids, palaces, schools, hospitals etc. They protected Islam and the holy cities; they allowed different religions to live under their rule (Christians, Jews etc). The Ottoman Empire lasted for 625 years (1299–1924 AD), was one of the largest Muslim empires, protected Islam for centuries, but slowly declined and ended in 1924 AD.

Reasons for their decline:

Rulers became weak and corrupt due to internal fights for the throne, imposing heavy taxes and decline in trade made the population unhappy and slowly lost power to European powers.

Period of Rule:

Start: 1299 AD (by Uthmān ibn Ertuğrul) as Ottoman Empire (not caliphate). But later in 1517 AD declared itself as Caliphate, after they won the Mamluks in 1517 AD.

Peak: 1453-1683 AD (captured Istanbul; grew powerful; tried to capture of Vienna (in Austria) but did not won.

Decline: 1700-1800 AD onwards, lost lands & became weaker.

End: In 1924 AD, the Caliphate (خِلَافَةُ) was officially abolished by Mustafa Kemal Atatürk in Turkey.

Famous Ottoman Sultans:

1. Uthmān ibn Ertuğrul (عُثْمَانُ بْنُ أَرْطُغرُل) (Founder, 1299–1326).
2. Sulṭān Muḥammad al-Fātiḥ (سُلْطَانُ مُحَمَّدُ الْفَاتِيحِ) (Conqueror of Constantinople, 1451–1481).
3. Sulṭān Selīm al-Awwal (سُلْطَانُ سَلِيمِ الْأَوَّلِ) (Defeated Mamluks & took Cairo in 1517 & declared their caliphate).
4. Sulṭān Sulaymān al-Qānūnī (سُلْطَانُ سُلَيْمَانَ الْقَانُونِيِّ) (Suleiman the Magnificent, 1520–1566, peak of caliphate).
5. Sulṭān ‘Abd al-Ḥamīd al-Thānī (سُلْطَانُ عَبْدِ الْحَمِيدِ الثَّانِي) (Last strong ruler, 1876–1909).
6. Sulṭān Muḥammad al-Sādis (سُلْطَانُ مُحَمَّدُ السَّادِسِ) (Mehmed VI, last Ottoman Sultan, 1918–1922).

After the Ottoman (Usmaniya) Empire:

The Ottoman Empire officially ended in 1924 AD, when the last caliphate was abolished by Mustafa Kemal Atatürk (مُصْطَفَى كَمَالُ أَتَاتُورْكَ) in Turkey. After this in Turkey a secular republic called the Republic of Turkey (جُمْهُورِيَّةُ تُرْكِيَّة) was created in 1923, with Atatürk as its first president. The caliphate was removed and Turkey became a modern nation-state instead of an empire.

In Arab lands:

Many Arab regions that were once under the Ottomans were taken by European powers (especially Britain and France) after World War I. For example, Iraq, Syria, Palestine, Lebanon, and Jordan were divided between them.

In the wider Muslim world:

After the Ottomans, no new caliphate was made. Many Muslim leaders tried to bring back the caliphate, but none of them succeeded. Since then, Muslims have not been united under one single caliphate.

After the Ottomans, Europe (Britain & France) gained control over much of the Middle East, while Turkey became independent but secular. Thus Turkey (جُمْهُورِيَّةُ تُرْكِيَّة) replaced the Ottoman Empire. The Caliphate ended in 1924 AD and has not returned since.

Delhi Sultanate (السَّلْطَنَةُ الدِّهْلِيَّةُ) (Saltanat-e-Dihliyyah) (1206–1526 AD).

The Delhi Sultanate began in 1206 AD when Qutbuddin Aibak, a former slave general of Muhammad Ghauri of Ghor (Afghanistan), became sultan. It marked the beginning of Muslim rule in northern India. The sultanate included several dynasties: Mamluks (Slave dynasty), Khiljis, Tughlaqs, Sayyids, and Lodhis. Delhi sultanate was not a caliphate (khilaafat) but was Sultanate.

The Delhi Sultans brought Islamic culture, architecture, and administration to India. They built famous monuments like the Qutb-Minar. They also introduced new systems of taxation, military organization, and promoted trade. However, they faced constant battles with Hindu kingdoms and Mongol invasions. In 1526, the Delhi Sultanate ended when Babur defeated the Lodhis and established the Mughal Empire.

Founding (1206 AD):

After the death of Muḥammad Ghūrī (of Ghor, Afghanistan) in 1206, his generals divided his empire. Qutbuddin Aibak, his slave-general (Mamluk), declared himself Sultan of Delhi → beginning of the Delhi Sultanate. This was the first lasting Muslim kingdom in northern India.

5 Major Dynasties of the Delhi Sultanate:

1. Mamluk (Slave) Dynasty (1206–1290): was founded by Qutbuddin Aibak. He is famous for his monument Qutb Minar (Delhi). Iltutmish was also a Mamluk (slave dynasty), he was an important Sultan of Delhi. He made the Delhi Sultanate strong and stable. He started the Iqta system this means land was given to officers instead of paying them salary. The officers could collect taxes from that land. He organized the empire better and created a new system to pay his officers by giving them land instead of money. Razia Sultana (daughter of Iltutmish) became the first female ruler of Delhi.

2. Khilji Dynasty (1290–1320): Expansion of policies under Alauddin Khilji took place. Defeated Rajput kingdoms and sent expeditions into the Deccan. He strengthened market control and military reforms. He fought off Mongol invasions successfully.

3. Tughlaq Dynasty (1320–1414): Known for ambitious but often failed reforms. Muhammad bin Tughlaq shifted capital to Daulatabad, introduced token currency → both failed. Firuz Shah Tughlaq: built canals, cities, promoted architecture.

End period: Timur (Tamerlane) invaded Delhi (1398 AD), weakening the Sultanate.

4. Sayyid Dynasty (1414–1451 AD): Established after Timur's invasion. Weaker rulers, often controlled only Delhi and nearby regions.

5. Lodhi Dynasty (1451–1526) (Afghan dynasty): Sikandar Lodhi expanded territory, patron of arts. The last ruler was Ibrahim Lodhi, he got defeated by Babur (the Mughal founder) in the first Battle of Panipat (1526 AD); Babur started the Mughal Empire.

Granada Emirate (1238–1492 AD).

The Emirate of Granada was the last Muslim state in Spain (al-Andalus). It was founded in 1238 AD by the Nasrid dynasty after Muslim Spain had collapsed. It was not caliphate but was Emirate (Amir). It survived for over 250 years by paying tribute to Christian kingdoms and maintaining alliances. Granada (south Spain) became a center of art, architecture and scholarship. Its most famous monument is the Alhambra Palace, a masterpiece of Islamic architecture. But over time, Christian kingdoms grew stronger. In 1492 AD, the Catholic monarchs Ferdinand and Isabella conquered Granada, marking the end of Muslim rule in Spain.

Safavid Empire (1501–1736 AD).

The Safavid Empire (سَافَوید دَوْلَت) was a powerful dynasty in Persia (Iran), founded in 1501 AD by Shah Ismail I. They made Shia Islam the official religion of Persia (Fars-now Iran) which remains to this day. Their main capital became Isfahan, which they turned into one of the most beautiful cities in the world. The Safavids were rivals of the Sunni Ottoman Empire and often fought wars with them. They encouraged trade, arts, and Persian culture, blending Islamic and Persian traditions. The empire weakened due to internal struggles and invasions, finally collapsing in 1736 AD. But their lasting legacy was making Iran a Shia-majority region.

Mughal Empire (1526–1857 AD).

The Mughal Empire was founded in 1526 AD by Babur, who defeated the Delhi Sultan Ibrahim Lodhi at the Battle of Panipat on 21st April 1526 AD. The Mughals were of Turko-Mongol origin, related to both Timur and Genghis Khan. They ruled most of India for over 300 years, with famous emperors like Akbar, Shah Jahan etc. Mughal Empire was not caliphate but was a big Empire.

The Mughals are remembered for their cultural achievements, strong administration, and architecture. They built great monuments like the Taj Mahal, Red Fort, and Jama Masjid. The empire reached its peak under Akbar and other emperors, but declined afterward due to weak rulers and European colonial expansion. Finally, in 1857 after the Indian Revolt, the British abolished the Mughal dynasty, ending centuries of Muslim rule in India.

Founding and Origins of Mughals:

The Mughals were descendants of both Timur (from father's side) and Genghis Khan (from mother's side). Babur (1483–1530 AD) was the first Mughal ruler, came from Fergana (city of Uzbekistan). In 1526, he defeated Ibrahim Lodhi at the first battle of Panipat & founded the empire.

Major Emperors:

1. Babur (1526–1530 AD) → was founder, poet, memoirist (Baburnama-his own autobiography).
2. Humayun (1530–1540, 1555–1556) → Lost empire to Sher Shah Suri, regained it briefly.
3. Akbar (1556–1605 AD) → Expanded empire, known for religious tolerance, strong administration, and cultural integration.
4. Jahangir (1605–1627 AD) → Patron of arts and painting, maintained stability.
5. Shah Jahan (1628–1658 AD) → built the Taj Mahal, Red Fort, Jama Masjid, symbolizing Mughal glory.
6. Aurangzeb (1658–1707 AD) → Expanded Empire to its greatest extent, but his strict policies and long wars strained resources.

Achievements

Architecture: Taj Mahal, Fatehpur Sikri (Buland Darwaza), Humayun's Tomb, Shalimar Gardens.

Administration: Efficient tax system (Zabt), Mansabdari (rank-based bureaucracy).

Culture: Flourishing of Persian art, poetry, miniature painting, music etc.

Economy: India under Mughals was one of the world's richest economies (17th century).

Decline:

After Aurangzeb's death (1707 AD), empire fragmented. Successors were weak; regional powers (Marathas, Sikhs, Nawabs) grew stronger. European powers (Portuguese, French, British) gained influence.

In 1857 (Indian Revolt/First War of Independence), the British ended the Mughal dynasty, exiling the last emperor Bahadur Shah II (Zafar).

Legacy:

The Mughals ruled India from 1526–1857, leaving behind a legacy of art, architecture, administration, and cultural blending. They built some of the most iconic monuments in the world, and their rule shaped much of Indian history.

After the decline of the Mughal Empire in the 1857 AD, India became politically fragmented. Regional powers like the Marathas, Sikhs, Nawabs of Bengal, Hyderabad, and Mysore grew stronger, while the Mughals in Delhi held only symbolic authority. At the same time, European trading companies—especially the British East India Company—took advantage of this weakness. The British defeated regional powers one by one, such as at the battle of Plassey (1757 AD) and battle of Buxar (1764), gaining political and economic control. By the early 19th century, the British had become the dominant force in India. After the Indian Revolt of 1857, the last Mughal emperor Bahadur Shah II (Zafar) was exiled and the British formally ended the Mughal dynasty. From 1858 onwards, India came under direct rule of the British Crown, beginning the period known as the British Raj (1858–1947).

2. Hasan al-Basri & Rabia Basri.

Hasan Basri.

Introduction:

Hasan Basri (642-728 AD) was not a scientist in the modern sense, but a scholar, preacher, ascetic (zāhid) and theologian (mutakallim), whose thoughts shaped Islamic spirituality, ethics, and theology. He is remembered as a pioneer of Islamic Sufism, a strong voice of moral conscience, and a link between the Prophet's Companions and later generations. He was a Qazi (judge). He was a taabain (2nd generation of Islam). He followed Sunni sect (maslak), it is not clear which Sunni he

was' means hanafi, maliki, shafi or hanbali because in his time these 4 sect (maslak) (differences) were not there. He taught in this early age to the people during Khilaafat-e-Umayya period.

Please note that Sufis of early time specially during Islamic golden age were Islamic Sufis & they practiced Islam full like Salah, Haj, fasting in ramzaan, tahajjud salah etc & though people the true meaning of Quran & hadith & the right way etc; today's Sufis are different they don't practice Faraiz (Islamic obligatory practice) fully, they smoke drugs etc & drag people in false pathway.

Early Life and Background:

Full name: Abū Saʿīd al-Ḥasan ibn Abī'l-Ḥasan al-Baṣrī. Born in 642 AD (21 hijri) in Medina, during the caliphate of Umar ibn al-Khaṭṭāb.

His parents were freed slaves: his father was from Persia, his mother Khairah served Umme Salma (wife of the Prophet ﷺ). He was raised in an environment close to the Prophet's household, giving him deep exposure to early Islam. His family moved to Baṣra (Iraq) after battle of Siffin, which became his home and intellectual base.

Teachers and Influences:

Studied under many Companions of the Prophet ﷺ including Uthmān ibn 'Affān, Alī ibn Abī Ṭālib, Abdullāh ibn Abbās, Abū Hurayrah, Anas ibn Mālik (r.a) (who transmitted Hadith to him). This gave him a direct chain of knowledge after the Prophet ﷺ. He was very much influenced by early Quranic scholars, jurists, and ascetics (zahids).

Career and Preaching:

He was settled in Baṣra, a bustling garrison city and intellectual center. He was known for his eloquent sermons (khubah), ascetic lifestyle (simply lifestyle) and fearless criticism of rulers. Soon he became a popular preacher, attracting students, ascetics, and seekers of wisdom.

Sometimes consulted by rulers (like Caliph Umar ibn Abdul Azīz) but often spoke against political corruption. He refused wealth and high positions, choosing a life of simplicity.

Books and Attributed Works:

Ḥasan al-Baṣrī himself did not write extensively; much of his thought was transmitted orally by students. However, later collections preserve his sayings and letters:

1. Kitāb al-Zuhd (Book of Asceticism): sayings on piety and renunciation.
2. Risāla fī'l-Qadar (Treatise on Predestination): one of the earliest texts in Islamic theology.
3. His sermons (Khutbah) and letters were collected & preserved & were found in later works like Ibn al-Jawzī's Ṣifāt al-Ṣafwā.

Contributions to Islamic: a) Spirituality (Early Sufism):

He is considered as founding fathers of Sufism. He taught detachment from worldly pleasures (zuhd) and emphasized for fear of Allah (khawf), hope in Allah's mercy & remembrance of death and accountability (hisaab kitab).

b) Theology (study of Allah & His path):

He was one of the earliest to discuss free will vs. predestination (Qadar). He opposed the deterministic view that excused injustice as Allah's will. His views inspired the Qadariyya movement, which emphasized human responsibility. In Islam, Qadar (قدر) refers to Divine Destiny, the belief that Allah has decreed and known everything that has happened, is happening, and will happen in the universe. Qadariyya were early Muslims who strongly defended free will against predestination, clashing with rulers. Explain in the table at the end of this lesson.

c) Ethics and Society:

He was a critic (against) of tyranny (zulm) and hypocrisy (nifaq / munafiq). Promoted justice, honesty, humility, and compassion (raham/ kindness, mercy). He urged the rulers to uphold the rights of the weak and poor.

d) Influence on Scholars:

Many later teacher, ascetics and Sufis were influenced by him, scholars like Sufyān al-Thawrī, Rābia Basri, and al-Ghazālī etc. His legacy became foundational in both Sunni theology and Sufi spirituality.

6. Teachings and Thought:

Allah is just, merciful, but humans must act responsibly. Purify from greed, arrogance, and hypocrisy should practice; gaining true knowledge is not only intellectual but transformative. Remembrance of Death (O son of Adam, you are nothing but a number of days. Whenever a day passes, a part of you is gone). Speak truth to power, advised to the rulers but refused to flatter them.

7. Talent and Personality:

He was known for his deep, eloquent voice and powerful sermons, his words moved listeners to tears and repentance. He is remembered for his wisdom, humility, and sincerity. His greatest talent was to combine Quranic insight with practical guidance for ordinary Muslims.

8. Death and Legacy:

He died in 728 AD (110 Hijri) in Baṣra. His funeral reportedly attracted tens of thousands of mourners. His legacy (left behind in teachings etc) (he was & taught); Pioneer of Islamic spirituality and Sufism. Early theologian who shaped debates on free will and divine justice. A model of fearless integrity, refusing to compromise with corrupt rulers. His sayings continue to inspire Muslims across traditions. He was remembered as Imam of Basra.

9. Critical Perspective:

Some later historians saw him as too pessimistic (overemphasizing fear of Allah). Others argue he brought balance, combining fear with hope. While not a scientist, his contribution to ethical thought and psychology of the soul influenced Islamic civilization deeply.

10. Conclusion:

Ḥasan al-Baṣrī (642–728 AD) was one of the great moral voices of early Islam. He lived close to the Prophet's Companions, mastered Quranic teachings and became the most famous preacher of his time. His legacy lies in spiritual purification, theological reflection, and fearless moral guidance. As a founder of early Sufism, he bridged law, theology, and spirituality, leaving behind teachings that continue to inspire seekers of truth across the centuries.

Comparison: Qadariyya vs. Jabriyya vs. Sunni Orthodoxy:

Aspect	Qadariyya (Free Will Group)	Jabriyya (Predestination Group)	Sunni Orthodoxy (Middle Path)
View of Human Will	Humans have full free will; they create their own actions.	Humans have no free will; all actions are predetermined by Allah.	Humans have choice (ikhtiyār), but the power to act is created by Allah.
Divine Justice	True justice requires free will; Allah does not force sins.	Justice = whatever Allah decrees, even if humans are forced.	Allah creates actions, but humans 'acquire' (kasb) them and are accountable.
Responsibility	Humans are fully responsible for their deeds.	Humans have no real responsibility since they are compelled.	Humans are responsible because they choose, though power comes from Allah.
Political Implications	Criticized rulers → injustice is their choice, not 'Allah's decree.'	Supported rulers → 'their rule is Allah's decree, so obey them.'	Middle stance → rulers are accountable, but divine will still governs.
Famous Figures	Ma'bad al-Juhānī, Ghaylān al-Dimashqī	Jahm ibn Ṣafwān (linked to Jahmiyya)	Abū al-Ḥasan al-Ash'arī, Abū Manṣūr al-Māturīdī, Imām Aḥmad ibn Ḥanbal
Later Influence	Adopted by Mu'tazilah (rationalist theology).	Influenced extreme fatalistic sects (Jahmiyya).	Became the Sunni mainstream view (Ash'arī & Māturīdī schools).
Status in Sunni Tradition	Considered a deviant sect.	Considered a deviant sect.	Accepted as orthodox position.

Rabia Basri.

Rābia al-ʿAdawiyya al-Baṣriyya (717–801 AD) was well known as **Rābia al-Baṣrī**, one of the earliest and most influential women mystics (Islamic spiritual knowledge) in Islamic history. She is remembered not for science in the technical sense, but for her revolutionary teachings on divine love (maḥabba), her ascetic life (simple Islamic life style), and her impact on Sufi spirituality. She was among the first to teach that Allah should be loved purely for His own sake, not out of fear of Hell or desire for Paradise. She was a Sunni but not clear which sunni because at her time the 4 types of sunni-hanafi, maliki, shafi, hanbali were not fully developed.

Please note that Sufis of early time specially during Islamic golden age were Islamic Sufis & they practiced Islam fully like Salah, Haj, fasting in ramzaan, tahajjud salah etc & taught people the true meaning of Quran, hadith & the right way etc; todays Sufis are different they don't practice Faraiz (Islamic obligatory practice) fully, they smoke drugs etc & teach people in false pathway.

Early Life and Background:

Full name: Rābia bint Ismāʿīl al-ʿAdawiyya al-Qaysiyya. Born around 717 AD (95 hijri) in Baṣra (Iraq) during Ummaya caliphate. She was from a poor family & was the

fourth daughter (rābia means “the fourth”). Got orphan at a young age; reportedly sold into slavery due to poverty. Her master got impressed by her piety and devotion, eventually freed her. She taught in her adult life time & this was early Abbasi Caliphate period.

Turn to Asceticism (detachment from worldly pleasure) (Zuhd):

Asceticism means to detach from worldly pleasure, live a simple life & remembrance of Akhirat (hereafter).

After being freed, Rābia chose a life of renunciation (detachment from excessive love of Dunya-worldly life). She lived in poverty, (Salah) prayers, fasting, and night prayers (Salah). She refused marriage proposals, saying she was too occupied in Allah's though, soon got known in Baṣra for her saintly life, wisdom, and purity of heart.

Spiritual Philosophy and Teachings:

a) Divine Love (maḥabba): her central teaching was that love of Allah must be selfless and unconditional. Her famous dua was: “O Lord, if I worship You from fear of Hell, burn me in Hell. If I worship You from hope of Paradise, exclude me from Paradise. But if I worship You for Your own sake, show me Your Eternal (everlasting) Beauty.”

b) Balance of Fear, Hope, and Love: Earlier ascetics (simple living sufis) stressed fear (khawf) of Allah and hope (rajā). Rābia emphasized love as the highest path. Shifted Sufism from fear-based piety to devotional intimacy with Allah.

c) Detachment from the World: Practiced strict poverty, owning almost nothing. Believed worldly detachments & obey Allah's path (means too much or excessive love greed for the Duniya, makes hard to focus on Allah).

d) Inner Sincerity (ikhlāṣ): she taught that worship must be pure, free of ulterior motives.

e) Saw the heart as the true locus of divine encounter (it is a phrase) means the heart is where faith, love for Allah, sincerity, spiritual enlightenment is achieved.

Role in Sufism and Islamic Thought:

She was the first female Islamic Sufi saint whose influence shaped the entire Sufi tradition. She elevated the concept of divine love into a cornerstone of Sufi theology. She was inspired by Ḥasan al-Baṣrī & inspired Dhū'l-Nūn al-Miṣrī, Junaid Baghdadi, and Rūmī by her teachings & became a model for female piety and spiritual authority in Islam.

Books and Sayings:

Rābia herself did not write any books, but her sayings, poetic dua and poems were preserved by disciples and later Sufi biographers like Farīd al-Dīn 'Aṭṭār (Tadhkirat al-Awliyā'). Collections of her words emphasize her wisdom, humility, and love for Allah.

Contributions to Science and the World (Indirect):

Rābia did not contribute to natural sciences directly, her contributions to human thought were profound: 1) Revolutionized religious psychology by making love for

Allah the highest motive. 2) Contributed to the philosophy of mysticism (tasawwuf- feeling near to Allah) within Islam. 3) Inspired a vast tradition of Sufi poetry, philosophy and art. 4) Gave women a respected place in the history of Islamic spirituality.

Teachings in Practice:

1) Lived in seclusion (uzla) (avoiding people/ isolation), rejecting fame and wealth. 2) Known for her night-long (Salah) prayers and constant remembrance of Allah. 3) When asked why she never married, she replied that she belonged to Allah. 4) Her life embodied purity, sincerity and total devotion.

Talent and Personality: 1) Remarkable for her eloquence (speech in short with deep meaning) and wisdom (deep understanding & judgment) despite poverty and hardship. 2) Charismatic (having a spiritual charm & power which attracted people) and spiritually magnetic (people felt pulled toward her), drawing both men and women to her circle. 3) Her greatest talent: expressing deep love of Allah in words that touched hearts for centuries. 4) Courageous: spoke truth even to famous male scholars of her time.

Death and Legacy: She died around 801 AD (185 hijri) in Baṣra (during Abbasi caliphate) & was buried there; her grave became a place of reverence.

Legacy:

1) First great female saint of Islam. 2) Elevated the concept of love of Almighty in Islamic thought. 2) Inspired Sufi poets like Rūmī, Aṭṭār, and Ibn Arabī. 3) Remembered worldwide as a symbol of pure devotion.

Critical Perspective:

Some modern historians question the historical accuracy of all attributed sayings, since most were preserved centuries later. Regardless, the spiritual archetype of Rābia is consistent: a woman of pure devotion and love. She represents a turning point: the feminine voice in Sufism, emphasizing love and closeness with Allah.

Conclusion:

Rābia al-Baṣrī (717–801 AD) was a pioneer of Sufi spirituality, remembered as the saint who made love of Allah the central principle of Ibaadat. Born in poverty, living as an ascetic and leaving no written books but remembered for her poetries, dua, truth deep meaning speech, new thoughts in Sufism; she nevertheless shaped Islamic mysticism forever. Her legacy is not in science or politics, but in the science of the heart; teaching that Allah should be loved for His own sake. Today, she is revered (respected) across the Muslim world (by all shia, sunni, shafi etc) and beyond as a woman of wisdom, love, and holiness. It is not clear whether she was sunni or shia or else, but she is famous for being Islamic Sufi.

Her followers:

1) Dhū'l-Nūn al-Miṣrī (ذو النون المصري, 859 AD):

He followed & got inspired by her teachings after many years of her death; he was during the early Abbasi caliphate; He developed the doctrine of ma'rifa (knowledge of Allah through direct experience). He used symbolic language (special words) and allegories (explain with stories or examples) in mysticism (Sufism). He was a pure Islamic sufi.

2) Al-Junayd al-Baghdādī (الجنيد البغدادي, 910 AD):

He followed & got inspired by her teachings after many years of her death; he was during golden time of Abbasi caliphate; He systematized sober mysticism (means not getting extreme in sufism, maintain peaceful balance Sufism & Islam). He taught that union with Allah (fanā') should not abolish the law (Sharī'a) means when any sufi feels union with Allah, he is not allowed to break the laws of Islam). He emphasized sober intoxication (balance between ecstasy and discipline) means the sufi should not get overconfident when he gets the inner joy of Allah's love, he should balance everything, obey & practice all Islamic laws. He was a pure Islamic sufi.

3) Al-Ghazālī (الغزالي, 1111 AD):

He followed & got inspired by her teaching after many years of her death; he was during the end period of Abbasi caliphate.

He integrated Sufism with orthodox Sunni Islam. His works, especially Iḥyā' Ulūm al-Dīn, gave philosophical depth to mystical concepts. He defended Sufism against rationalist critics. He was in the end period of Abbasi caliphate period. He was a pure Islamic sufi. A whole chapter no. 16 is written on him in my book please read it.

4) Ibn Arabī (ابن عربي, 1240 AD):

He followed & got inspired by her teaching after many years of her death; he was during the last period of Abbasi caliphate. He developed waḥdat al-wujūd (unity of being). Saw all existence as manifestations of Allah's reality. His profound influence (very deep and lasting effect) on Islamic philosophy and mysticism worldwide.

The above lines mean that everything in the world is a sign or reflection of Allah's reality. Example: a flower shows Allah's beauty; the sky shows Allah's greatness; kindness shows Allah's mercy. So, the world is like a mirror-it reflects Allah's names and attributes, but Allah is greater than all of his creation. He changed how people in many countries thought about religion and spirituality. His ideas had a very big effect on Islamic philosophy and Sufism all over the world. His teachings shaped the way many Muslim thinkers, poets, and saints understood Allah and the universe. Even outside Islam, philosophers and mystics studied his writings

5) Rūmī (مولانا جلال الدين الرومي, 1273 AD):

He followed & got inspired by her teaching after many years of her death; he was born after the Abbasi caliphate ended, as the Mongols invaded Baghdad in 1258 AD. He lived under the Seljuk Sultanate of Rum (turkey). Through his poetry (Mathnawī) expressed mystical philosophy in accessible, emotional, and symbolic ways. He stressed on love, union and annihilation in Allah. He taught that the best spiritual path is to love Allah deeply, to feel united with Him in the heart, and to forget yourself completely so that only Allah remains in your mind and soul.

Love: treating Allah as the true Beloved.

Union: feeling so close to Allah that nothing stands between you and Him.

Annihilation in Allah (fanā'): losing your ego and selfishness until only Allah's presence fills you. In short: The self disappears and only Allah's love remains.

3. Four Imams of Sunni.

Imām Abū Ḥanīfa (الإمام أبو حنيفة النعمان بن ثابت) (699–767 AD).

Introduction:

Imām Abū Ḥanīfa (الإمام أبو حنيفة) was the founder of the Ḥanafī sect (maslak) of Islamic, the oldest of the four major sect (maslak) Sunni (hanafi, maliki, shafi, hanbali). He is remembered for his sharp reasoning, independence, and strong influence on Islamic jurisprudence (fiqh).

Full name, parent name:

His full name was Abū Ḥanīfa al-Nu‘mān ibn Thābit (الإمام أبو حنيفة النعمان بن ثابت). His father was Thābit (ثابت), a merchant of Persian origin.

Early life & background:

He was born in 699 AD in Kufa (Iraq) during the Umayyad Caliphate. From a young age, he showed great intelligence and interest in religion and trade.

In which caliphate:

He lived under the Umayyad and early Abbasid Caliphates.

His teacher; education & influences:

He was a Tabi’een; He met Anas ibn Malik (r.a) the sahabi. He studied under many Tabi’eens, including Ḥammad ibn Abī Sulaymān. He was also influenced by scholars of hadith and reasoning.

Here are his main teachers:

1. Hammad ibn Abi Sulayman: His **main teacher** and **fiqh mentor** (jurisprudence teacher). Abu Hanifa studied under him for **18 years** in Kufa. Hammad was the student of **Ibrahim al-Nakha’i**, who was the student of **‘Alqamah**, who learned from **Abdullah ibn Mas’ud (r.a)** — one of the greatest jurists among the Sahabah. This means Abu Hanifa’s *chain of fiqh (Islamic law)* goes directly back to **Abdullah ibn Mas’ud (r.a)**.
2. Ata ibn Abi Rabah: A great scholar of **Makkah**, student of **Ibn Abbas (r.a)**. Abu Hanifa spent time learning from him during Hajj seasons. Ata was known for his deep understanding of Qur’an and Tafsir.
3. Ikrimah: The freed slave and student of **Ibn Abbas (r.a)**. Known for his strong knowledge of Tafsir (Qur’an explanation). Abu Hanifa met and benefited from him in Makkah.
4. Nafi: The freed slave of **Abdullah ibn Umar (r.a)**. He was one of the main transmitters of **Hadith**. Abu Hanifa learned narrations and rulings from him.
5. Qatada ibn Di’ama: A scholar of Basra and student of **Anas ibn Malik (r.a)**. Expert in Tafsir and Hadith. Abu Hanifa learned Qur’anic interpretation from him.
6. Al-Sha’bi (Aamir ibn Shurahbil): One of the great scholars of Kufa, a **Tabi’i** who learned from many companions. Abu Hanifa learned about **legal reasoning (Qiyas)** and **Islamic ethics** from him.

Career & historical context:

He became a leading jurist in Kufa and later in Baghdad. He refused political positions from the Abbasid rulers and was even imprisoned for his independence. He believed that rulers often pressured judges to give rulings that suited politics, not according to Islam just because the Abbasi caliphate want to make him a judge (Qazi) due to his talent, knowledge of Islam.

Major work/books:

His ideas are preserved in works compiled by his students, such as ‘Al-Fiqh al-Akbar and Kitāb al-Āthār.

Contribution in modern science:

His method of using logic and reasoning influenced later legal thinking and even approaches to rational inquiry.

Technic & thoughts:

He emphasized qiyās (analogy), reasoning, and opinion (rai) (mashwara) in law. His system allowed flexibility in changing circumstances means Imam Abu Hanifa used qiyās (reasoning by analogy) and rai (mashwara) (personal judgment based on knowledge) when making Islamic laws. If the Quran and Hadith clearly gave a ruling, he followed it. If there was no direct answer, he used logic and reasoning to find a solution. He compared new situations with older ones (this is called qiyās) to make fair rulings.

Death & legacy:

He died in 767 AD in Baghdad during (Abbasi khilaafat), reportedly poisoned in prison. His sect (maslak) spread widely across the Muslim world, especially in South Asia, Turkey, and Central Asia.

Critical/critics perspectives:

Some critics accused him of relying too much on reasoning instead of hadith. Yet, many praised him for balancing logic with faith.

Conclusion:

Imam Abu Hanifa’s greatest contribution was the establishment of the Hanafi sect (maslak), one of the four major Sunni sect (maslak). His method combined the Qur’an, Hadith, consensus of scholars, and reasoning through analogy (qiyās) and personal judgment (rai) (mashwara). He also introduced the principle of istihsān (juristic preference), which allowed choosing what was fair and beneficial when strict rules caused hardship. This made his system practical, flexible, and suitable for changing times and situations. Imam Abu Hanifa also trained many great students, like Imam Abu Yusuf and Imam Muhammad al-Shaybani, who spread and preserved his teachings in written works. His fiqh not only covered worship and rituals but also trade, contracts, family matters, and governance, making it useful for everyday life. Today, millions of Muslims across the world—including in South Asia, Turkey, Central Asia, and the Balkans—still follow Hanafi fiqh, showing how deeply his work continues to guide Islamic practice.

Imām Mālik ibn Anas (الإِمَامُ مَالِكُ بْنُ أَنَسٍ) (711–795 AD).

Introduction:

Imām Mālik started the Mālikī sect (maslak) (school of law). He lived in Medina, the city of the Prophet ﷺ, and believed that the way people in Medina practiced Islam was very close to how the Prophet ﷺ and his companions had practiced it. Because of this, he taught that their customs and daily practices should be taken as an important source for Islamic law, along with the Qur’an and ḥadīth. This gave his sect (maslak) a strong connection to the early traditions of Islam, and it became one of the main sect (maslak) followed in North Africa, Andalusia (Spain), and parts of Arabia.

Full name, parent name:

His full name was Mālik ibn Anas ibn Mālik ibn Abī Āmir. He was born in Medina into a respected Arab family. His father’s name was Anas ibn Mālik (not the famous sahaabi of Prophet Muhammad ﷺ, Anas ibn Mālik r.a, but another person with the same name).

Early life & background:

He was born in 711 AD during the late Umayyad Caliphate. He grew up surrounded by scholars in Medina.

In which caliphate:

He lived through the Umayyad and Abbasid periods.

His teacher; education & influences:

He studied with famous scholars like Imām Jafar al-Ṣādiq, Ibn Hurmuz, and al-Zuhrī.

Career & historical context:

He became the leading scholar of Medina and was respected by caliphs, though he sometimes resisted their pressure.

Major work/books:

Al-Muwaṭṭa is the most famous book of Imām Mālik ibn Anas. The title means “The Well-Trodden Path” or “The Approved Path.” It is considered one of the earliest written collections of ḥadīth (sayings of the Prophet ﷺ) and fiqh (Islamic law rulings). Imām Mālik worked on it for more than 40 years, carefully selecting reports and legal opinions. What makes Al-Muwaṭṭa unique is that Imām Mālik used not only ḥadīth but also the practice of the people of Medina as a source of law. He believed their living tradition reflected the Prophet’s teachings very closely. Even great scholars like Imām al-Shāfi’ī praised it highly, calling it one of the most authentic works.

The book contains about 1,700 narrations, including: Sayings of the Prophet ﷺ (ḥadīth). Sayings of the companions (ṣaḥāba). Opinions of later scholars of Medina & Imām Malik’s own legal judgments and reasoning.

Contribution in modern science:

His focus on community practice as a legal source influenced modern studies on law and culture.

Technic & thoughts:

He stressed following hadith and the practice of Medina. He preferred caution and stability in legal decisions.

Death & legacy:

He died in Medina in 795 AD. His sect (maslak) spread in North Africa, Andalusia (Spain), and parts of Arabia.

Critical/critics perspectives:

Critics said he relied too much on Medina’s practice, but his method preserved authenticity.

Conclusion:

Some people thought Imām Mālik depended too much on the customs of Medina, which they felt were too local and not for everyone. But many others respected him because his method was authentic and closely connected to the Prophet ﷺ and his companions. Means some criticized him for being too local, but many praised him for being genuine and true to the Prophet’s tradition.

Imām al-Shāfi‘ī (767–820 AD).

Introduction:

Imām al-Shāfi‘ī founded the Shāfi‘ī sect (maslak). He is known for creating a systematic approach to Islamic jurisprudence (fiqh).

Full name, parent name:

His full name was Muḥammad ibn Idrīs al-Shāfi‘ī. His father’s name was Idrīs ibn al-Abbās. His mother’s name was Fāṭimah bint Abdullāh.

Early life & background:

His father died when he was very young, so he was raised mainly by his mother, who took him to Mecca for his education. He was born in 767 AD in Gaza (Palestine), the same year Imām Abū Ḥanīfa died. He grew up poor but memorized the Qur’an at a young age.

In which caliphate:

He lived under the Abbasid Caliphate.

His teacher; education & influences:

He studied under students of Imām Mālik in Medina and was influenced by both Mālikī and Ḥanafī traditions.

Career & historical context:

He worked in Baghdad and Egypt, refining Islamic legal theory. He traveled widely and debated with scholars.

Major work/books:

1. *Al-Risālah* (The Treatise). This is the first book ever written on the principles of Islamic law (fiqh). In it, Imām al-Shāfi explained how Islamic law should be made and what sources to use. He set a clear order of authority: Quran, Hadith of the Prophet ﷺ, Consensus (ijmā‘) of the Muslim community. Analogy (qiyās) when there is no direct text. *Al-Risālah* made Islamic law more organized, systematic, and logical.

2. *Al-Umm* (The Mother Book). This is a large collection of Imām al-Shāfi’s legal rulings and opinions. It covers many topics: Salah (prayer), fasting, zakāt, ḥajj, family laws, trade, criminal laws, and more. It is practical and shows how his legal principles from *Al-Risālah* work in real situations. It became the main reference for the Shāfi sect (maslak) and is still studied today.

Contribution in modern science:

He developed principles of systematic reasoning and evidence, which shaped later scientific and legal methods.

Technic & thoughts:

He stressed combining Quran, hadith, consensus (ijmā‘), and analogy (qiyās) as legal sources.

Death & legacy:

He died in 820 AD in Egypt. His sect (maslak) spread in East Africa, Southeast Asia, and parts of the Middle East.

Critical/critics perspectives:

Some considered him too strict in rejecting local customs, but others admired his clarity and method.

Conclusion:

Imām al-Shāfi‘ī brought structure to Islamic law (fiqh), earning respect across Sunni traditions.

Imām Aḥmad ibn Ḥanbal (780–855 AD).

Introduction:

Imām Aḥmad ibn Ḥanbal was the founder of the Ḥanbalī sect (maslak). He is remembered for his strong defense of hadith and refusal to compromise under political pressure. The correct name is Imām Aḥmad ibn Ḥanbal (with “Ḥanbal”). “Ibn Ḥanbal” means “son of Ḥanbal” (his grandfather’s name). Some people mistakenly say “Ibn Hambal. His followers are called as hanbali, by mistake pronounced as Hambali also.

Full name, parent name:

His full name was Aḥmad ibn Muḥammad ibn Ḥanbal al-Shaybānī. His father’s name was Muḥammad ibn Ḥanbal.

Early life & background:

He was born in 780 AD in Baghdad, during the Abbasid Caliphate. He grew up an orphan and dedicated his life to studying hadith.

In which caliphate:

He lived during the Abbasid Caliphate.

His teacher; education & influences:

He studied under scholars in Baghdad and traveled widely to collect hadith. He was influenced by Imām al-Shāfi‘.

Career & historical context:

Imām Aḥmad ibn Ḥanbal became famous during the Mihna (inquisition), which was a time when the Abbāsīd rulers forced scholars to say that the Quran was created. Most scholars gave in because they were afraid of punishment, but Imām Aḥmad refused to change his belief. He said the Quran is the eternal word of Allah, not created. Because of this, he was arrested, beaten, and imprisoned, but he never gave up his belief. His courage made him a hero in the eyes of ordinary Muslims.

Major work/books:

His great work is ‘Musnad Aḥmad book. Musnad Aḥmad is the most famous book of Imām Aḥmad ibn Ḥanbal. It is a large collection of hadith (sayings of the Prophet

(عليه وسلم). The book contains about 30,000+ hadiths. Imām Aḥmad arranged them by the names of the companions who narrated them, not by subject. For example, all the hadiths narrated by Abū Bakr (r.a) are grouped together, then those by ‘Umar (r.a), and so on. He included hadith of different levels (strong and weak), but his goal was to collect as much as possible from the Prophet ﷺ. It is one of the largest hadith collections in Islam. It preserves many narrations not found in other books. Later scholars (like al-Bukhārī and Muslim) also used it as a source. It shows his lifelong dedication to preserving the Prophet’s words.

Contribution in modern science:

His careful hadith collection influenced the science of verifying sources and reliability.

Technic & thoughts:

He stressed strict reliance on Quran and hadith, rejecting excessive reasoning.

Death & legacy:

He died in 855 AD in Baghdad. His funeral was attended by huge crowds. His sect (maslak) spread mainly in Arabia and later influenced Islamic reform movements.

Critical/critics perspectives:

Some criticized him for being too literalist, but many praised his honesty and courage.

Conclusion:

Imām Aḥmad ibn Ḥanbal’s steadfastness and devotion to hadith left a lasting impact on Islamic faith and law.

Comparison of the Four Imams:

Aspect	Imam Abu Hanifa	Imam Malik	Imam al-Shafi’i	Imam Ahmad ibn Hanbal
Lifetime	699–767 AD	711–795 AD	767–820 AD	780–855 AD
Major Work	Al-Fiqh al-Akbar, Al-Fiqh al-Absat	Al-Muwatta	Al-Risala, Kitab al-Umm	Musnad Ahmad
Method	Reasoning, analogy (qiyas), opinion (ra’y)	Practice of Medina, hadith	Balanced hadith and reasoning (fiqh)	Strict hadith reliance, literalism
Legacy	Hanafi sect (maslak) – South Asia, Turkey, Central Asia	Maliki sect (maslak) – North & West Africa	Shafi’i sect (maslak) – East Africa & Southeast Asia	Hanbali sect (maslak) – Arabia, later Wahhabi influence

4. Jābir ibn Hayyān & Imam Jafar Sadik.

Jabir ibn Hayyan.

Introduction of jabir ibn hayyan:

Jābir ibn Ḥayyān (721-815 AD) was the legendary polymath, chemist, alchemist, and scholar of the early Islamic world. He is often regarded as the “Father of Chemistry” and one of the most influential figures in the history of science. He was a Shia scholar. He was a Shia Muslim, closely connected to Imam Jafar al-Ṣādiq. Most historians link him with early Ismaili Shia circles, though Twelver Shia (Jafari shia) also regard him with respect. A polymath is a person who has deep knowledge and skills in many different subjects, not just one.

Early Life and Background:

His full name is Abū Mūsā Jābir ibn Ḥayyān al-Azdī. Born around 721 AD in Tus, Khorasan (Persia/Iran), by though some sources place of his birth was Kufa (Iraq). His father was a pharmacist/herbalist who may have been executed for political reasons. He grew up in Kufa (Iraq), one of the major intellectual centers of early Abbasi caliphate. Became associated with the Shia scholarly circles and particularly with Imām Jafar al-Ṣādiq (702–765 AD), who is said to have been his teacher in philosophy and esoteric sciences. Esoteric means secret, hidden, or meant for only a small group of people with special knowledge or understanding.

Education and Influences:

He was expert in these fields: medicine, pharmacy, chemistry, mathematics, and philosophy. He was influenced by Greek, Persian, and Indian sciences & transmitted into Arabic during the Abbasid era. His association with Imām Jafar al-Ṣādiq gave him a strong background in both religious thought and experimental inquiry. He also influenced by Hermetic and alchemical traditions, blending mysticism (spiritual) with experimental methods.

He was inspired by (Hermetic ideas) old teachings that mixed philosophy, magic, and spiritual wisdom) and by (alchemy) early science that tried to turn metals into gold and discover secret medicines & instead of only focusing on spiritual or mystical beliefs, he also mixed in some practical experiments and scientific methods.

Career and Historical Context:

He lived under the Abbasid Caliphate during its golden age of intellectual expansion. Some sources say he worked under the patronage of Caliph Hārūn al-Rashīd (786–809 AD). He not only worked as an alchemist (doing experiments with metals, chemicals, and medicines) but also wrote many books about his knowledge and ideas. His reputation grew not only in the Islamic world but also in medieval Europe through Latin translations.

Major Works:

Tradition attributes hundreds of books to him (some estimates say over 3,000, though many were written by later followers of the “Jābirian sect maslak”).

Key works include:

1. Kitāb al-Kīmiyā’ (Book of Chemistry) — introduced systematic experimentation in alchemy.
2. Kitāb al-Sabīn (Book of the Seventy) — was translated into Latin, influenced medieval European alchemists.

3. **Kitāb al-Raḥma al-Kabīr (The Great Book of Mercy)** — outlines chemical theories and experiments.
4. **Kitāb al-Tajmīʿ (Book of Compilation)** — covers practical chemical recipes.
5. **Kitāb al-Aḥjār (Book of Stones)** — deals with minerals and chemical transformations.
6. **The Jābirian Corpus (The Works of Jābir ibn Ḥayyān)** — It's the name given to the collection of books written by or linked to Jābir ibn Ḥayyān. It is a large body of writings on alchemy, philosophy, mathematics, astronomy, and magic.

Contributions to Science and the World:

In Chemistry & Alchemy

1. Introduced systematic experimentation — not just speculation, but testing and recording results.
2. Described methods of distillation, crystallization, sublimation, calcination, evaporation, and filtration (he explained how to clean and separate substances by different methods, such as)

Distillation – heating a liquid to turn it into vapor and then cooling it back into liquid to make it pure.

Crystallization – turning a substance into crystals to separate or purify it.

Sublimation – changing a solid directly into gas (without becoming liquid first).

Calcination – heating something strongly until it turns into powder or ash.

Evaporation – letting liquid slowly disappear into air, leaving the solid part behind.

Filtration – passing a mixture through cloth, paper, or another filter to separate solids from liquids.

3. Discovered or improved the substances such as: Sulfuric acid, Hydrochloric acid, Nitric acid, Aqua regia (mixture of acids that dissolves gold)
4. Classified substances into metals, nonmetals, and spirits (volatile substances).
5. He explained how chemicals react with each other by using the right amounts and keeping them in balance (stoichiometry) (measuring the exact proportions of substances in a reaction). (He believed chemical reactions work properly only when the right quantities are mixed.)
6. Applied chemistry to medicine, preparing compounds, ointments, and drugs.
7. Advocated careful dosage and systematic testing.
8. Used numerical symbolism and proportions in chemical theories.
9. He also wrote about geometry (shapes, measurements) and arithmetic (numbers and calculations), because he believed these were important for understanding alchemy and its secrets.

10. He mixed together ideas from Islamic religion, Greek philosophy (logic and science), and Hermetic mysticism (spiritual and secret teachings about the universe).

11. He believed that one metal could be changed into another (like turning copper into gold). But he also said this should be done through real experiments and testing, not by superstition or magic tricks.

Teachings and Thought:

He taught ilm al-mīzān (the science of balance) — the idea that everything in the world is made from different amounts of four qualities: hot, cold, dry, and moist. He believed there is a harmony between nature, numbers, and spirituality. He said we should depend on real experience and experiments, not just old traditions. He saw science as a way to gain knowledge about the material world and also to purify the soul. And his main motto was: true knowledge must mix theory (thinking), practice (experiments), and spiritual wisdom (inner truth).

Talent and Personality:

He was known as a polymath (a person who knows about many different subjects) and had a very strong memory. He wrote many books, though not all of them may really be his. He was practical, creative, and experimental, far ahead of scientists in Europe at that time. His special talent was mixing big spiritual/philosophical ideas with real lab experiments.

Death and Legacy:

He died around 815 AD in Kufa, Iraq. He was called the Father of Chemistry (Abu al-Kimiya'). His writings formed the basis of Islamic and European alchemy and chemistry. His work influenced medieval European scholars such as Roger Bacon, Albertus Magnus, and Thomas Aquinas. His works in Latin (as "Geber") were studied in European universities until the 17th century. He was pioneered in the experimental method in chemistry, paving the way for modern science.

Critical Perspective:

Some books credited to him were probably written much later by his followers. His belief in turning one metal into another (transmutation) was incorrect, but it inspired people to experiment and explore. Although his mix of mysticism and science may feel confusing to modern readers, it was common in his time. What truly made him important was his focus on experiments, observation, and systematic methods, which marked a real turning point in the history of science.

Conclusion:

Jābir ibn Ḥayyān (721–815 AD) was one of the most influential scientists in Islamic and world history, called as the Father of Chemistry; he introduced laboratory techniques, discovered important acids, and emphasized empirical methods. His vast writings shaped Islamic and European science for centuries, bridging philosophy, medicine, alchemy, and chemistry. Though surrounded by legend, his real contribution was to make science experimental, practical, and universal.

Imam Jafar Sādiq.

Imām Jafar al-Ṣādiq (702–765 AD) was a great Muslim scholar, teacher, and spiritual guide, honored by both Sunnis and Shīas. He was born in Medina and came from a

noble family: his father was Imām Muḥammad al-Bāqir (a respected scholar and the 5th Shīa Imām), and through his mother he was also related to Abū Bakr (r.a), the first caliph. This gave him a unique position, respected by many groups in Islam.

He became famous for his deep knowledge of the Quran, ḥadīth, Islamic law, theology, and even natural sciences like chemistry and astronomy. Many great scholars, such as Imām Abū Ḥanīfa (the founder of the Ḥanafī sect (maslak) (school of law) and Imām Mālik ibn Anas (the founder of the Mālikī sect (maslak), are said to have studied with him or benefited from his teachings.

For Twelver Shīas (the largest branch of Shīa Islam), he is the sixth Imām in the line of twelve Imāms chosen by Allah. For the Ismā'īlīs (another Shīa branch), he is also the sixth Imām, but they followed his son Ismā'īl instead of his other son Mūsā al-Kāzim, which created two different successions.

Beyond sects, Imām Jafar is remembered as a man of piety, wisdom, and spirituality. His ideas influenced Islamic jurisprudence (law) and also Sufi mysticism, where he is often quoted as a source of spiritual insight. He taught that true knowledge combines faith, reason, and morality, and his life became a model of humility and devotion to Allah.

Life & Background:

- Born in Medina in 702 AD.
- Descendant of the Prophet Muḥammad ﷺ through both parents.
- Lived during the Umayyad and early Abbasid periods.
- Known for his piety, simplicity, and deep spirituality.

Education & Talent:

Learned Quran, ḥadīth, and law from his father Imām Muḥammad al-Bāqir and other scholars of Medina.

Had a sharp memory and deep intellect, with talent in theology, law, philosophy, astronomy, chemistry, and medicine.

Encouraged both rational thinking and spiritual devotion.

Students: Many famous scholars studied with him, including:

Imām Abū Ḥanīfa (founder of Ḥanafī Sunni law).

Imām Mālik ibn Anas (founder of Mālikī Sunni law).

Many Sufi teachers who carried his spiritual insights.

He trained hundreds of students, making Medina a center of learning.

Lifestyle:

Lived a simple and humble life, avoiding luxury. Known for his gentle manners, patience, and generosity. Spent much time in worship, teaching, and guiding students.

Works & Books:

Many writings and teachings are attributed to him, though not all are directly from him.

Among the most famous is the book “Kitāb al-Jafr”, which contains spiritual and symbolic teachings.

His sayings on science, ethics, and spirituality are often quoted in later Islamic works.

Teachings & Contributions:

Emphasized combining reason and faith.

Stressed that science and religion should support each other.

His ideas influenced Islamic law (fiqh), Shīa theology, and Sufi spirituality.

Critics & Challenges:

Faced political pressure under both Umayyad and Abbasid rulers, who feared his influence.

Some critics doubted the attribution of all scientific works to him.

Despite politics, he remained respected by Muslims across sects.

Death:

He died in Medina in 765 AD, possibly poisoned under the order of the Abbasid caliph al-Manṣūr. Shīa tradition strongly believes he was poisoned by the Abbāsids, while many historians say the exact cause of death is uncertain. Buried in Jannat al-Baqī' cemetery in Medina.

What Shīa sources say: Most Shīa historians and traditions report that Imām Jafar al-Ṣādiq was poisoned by order of the ‘Abbāsīd caliph al-Manṣūr. They argue that al-Manṣūr saw Imām Jafar’s popularity and influence as a political threat, so he wanted to remove him.

What Sunni and neutral historians say:

Many Sunni and modern historians simply record that he died in 765 AD in Medina, without clearly saying he was poisoned. Some historians mention poisoning as a possibility but cannot confirm it with strong evidence.

Legacy:

For Twelver Shīas (Jafari Shia), he is the sixth Imām.

For Ismā‘īlīs, he is also the sixth Imām, but they follow succession through his son Ismā‘īl.

Widely respected as a scholar, jurist, philosopher, and spiritual guide.

His teachings shaped Islamic law, philosophy, science, and Sufism.

Remembered as a bridge between Sunni and Shīa scholarship.

We all respect him very much. May Allah bless him more.

Conclusion:

Imām Jafar al-Ṣādiq (702–765 AD) was a towering figure in Islamic history, respected by both Sunnis and Shīas for his knowledge, piety, and wisdom. He was born in Medina, descended from the noble family of the Prophet Muḥammad, and became renowned for his deep understanding of the Quran, ḥadīth, law, theology, and natural sciences. His students included great Sunni scholars like Imām Abū Ḥanīfa and Imām Mālik ibn Anas, as well as many Sufi teachers, showing his wide influence. For Shīas, he holds a central place as the sixth Imām, while for Sunnis he is honored as a great teacher and jurist. Despite facing political challenges under the Umayyads and Abbasids, he remained devoted to teaching, worship, and guiding students. His legacy continues to inspire Muslims of all backgrounds, serving as a bridge between different traditions and a model of humility, knowledge, and spirituality. May Allah bless him and grant him the highest place in Paradise.

5. Ibn Qurayb al-Aṣmaī & Ibn Qanbar Sibawayh

Ibn Qurayb al-Aṣmaī.

Introduction:

Abū Saʿīd Abd al-Malik ibn Qurayb al-Aṣmaī (740–828 AD) was a famous Arab scholar of language, literature, zoology, and poetry. He was one of the leading figures of the Abbasid period and contributed greatly to Arabic grammar and natural sciences.

Full name, parent name:

His full name was Abū Saʿīd Abd al-Malik ibn Qurayb al-Aṣmaī. His father was Qurayb, and he came from a well-known Arab family in Basra. His main work was in language, poetry, zoology, and Bedouin culture, not in fiqh (law) or theology. He lived in the Abbasid Golden Age, when the four Sunni sect (maslak) (Hanafi, Maliki, Shafi, Hanbali) were just forming, because of that, historians don't classify him clearly as Hanafi, Maliki, Shafi, or Hanbali.

Early life & background:

He was born around 740 AD in Basra, Iraq, during the early Abbasid period. From a young age, he showed great interest in the Arabic language, Bedouin culture, and poetry.

In which caliphate:

He lived during the Abbasid Caliphate, which was a golden age of science, literature, and culture.

His teacher; education & influences:

He studied under great scholars like al-Khalīl ibn Aḥmad al-Farāhīdī (the founder of Arabic prosody and lexicography). He was also influenced by Bedouin Arabs, from whom he learned pure Arabic expressions and poetry (studied under Abū Amr ibn al-Alā and other masters of Arabic poetry and grammar).

Career & historical context:

Al-Aṣmaʿī became a teacher, poet, and court scholar in Baghdad. He served the Abbasid caliphs Hārūn al-Rashīd and al-Mamūn, entertaining them with stories, poems, and scientific observations. He is remembered as part of the intellectual flowering of the Abbasid era.

Major work/books:

Al-Aṣmaʿī wrote many books that connected Arabic language, literature, and natural science. His book:

1. Kitāb al-Khayl (Book of Horses) describes the breeds, behavior, and importance of horses in Arab culture and war.
2. Kitāb al-Ibil (Book of Camels) explains the uses of camels in travel, trade, and daily life, as well as their physical features.
3. Kitāb al-Wuḥūsh (Book of Wild Animals) is one of the earliest works on zoology, giving detailed descriptions of different animals, their habits, and their habitats. Along with these, he also wrote works on Arabic grammar, poetry, and Bedouin expressions, which helped preserve the richness of pure Arabic. His books show his skill in combining science with literature, making him one of the most important scholars of the Abbasid era.

Contribution in modern science:

His works on animals and nature are considered early contributions to zoology. He carefully described the behavior, anatomy, and use of horses, camels, and other animals, providing valuable information for later scientists.

Technic & thoughts:

Al-Aṣmaʿī's method was based on careful observation, collection of Bedouin poetry, and accurate recording of language. He valued the purity of Bedouin Arabic and used it as the standard for grammar and poetry.

Death & legacy:

He died in 828 AD in Basra. His works influenced later Arabic linguists, poets, and scientists. He left behind a legacy of combining literature with natural science.

Critical/critics perspectives:

Some critics argued that he was too focused on Bedouin language and traditions, but others praised him for preserving the richness of Arabic and linking it with science.

Conclusion:

Abū Saʿīd al-Aṣmaʿī was a remarkable scholar who united Arabic literature, poetry, and zoology. His writings helped preserve the Arabic language and inspired scientific curiosity in the Abbasid golden age.

Amr ibn Uthmān ibn Qanbar nickname Sībawayh

Introduction:

Amr ibn Uthmān ibn Qanbar, better known by his nickname Sībawayh (760–796 AD), was one of the greatest scholars of the Arabic language. He is regarded as the 'father of Arabic grammar' because of his ground-breaking work on the rules and structure of Arabic.

Full name, parent name:

His full name was Amr ibn Uthmān ibn Qanbar. He was originally of Persian descent and earned the nickname Sībawayh, meaning 'the scent of apples' in Persian. Details about his father are limited, but he came from a modest family background. Historians generally describe him as a Sunni Muslim, since he studied under al-Khalīl ibn Aḥmad al-Farāhīdī, who was a respected early Sunni scholar. He is not claimed by Shia (Jafari or Ismaili) traditions, and there is no record of him being linked to them. And it is not clear that he was from which Sunni sect (maslak) as the sect (maslak) were not fully formed in during period.

Early life & background:

Sībawayh was born around 760 AD in the town of Bayda in present-day Iran. He grew up in a non-Arab environment but developed a deep love for the Arabic language. His early life was marked by study and dedication to mastering Arabic, which was the language of religion and scholarship.

In which caliphate:

He lived during the Abbasid Caliphate, a golden age for scholarship, culture, and linguistic studies.

His teacher; education & influences:

He studied under leading scholars of his time, especially al-Khalīl ibn Aḥmad al-Farāhīdī, who shaped his understanding of grammar, lexicography, and linguistics. He also learned from Yunus ibn Habib and other scholars in Basra.

Career & historical context:

Sībawayh moved to Basra, which was a center of Arabic scholarship. He devoted his career to teaching and writing about grammar. He was part of the Basran school of grammar, which debated with the Kufan school. His work helped standardize Arabic grammar during the Abbasid period when Arabic was the language of administration and science.

Major work/books:

His most famous and only known book is 'al-Kitāb' (The Book). This monumental work is the first comprehensive book on Arabic grammar. It covers phonetics, syntax, morphology, and linguistic theory. Scholars have studied it for centuries, and it became the foundation of Arabic grammar studies.

Contribution in modern science:

Though not science in the modern sense, Sībawayh's work influenced modern linguistics. His detailed analysis of language structure laid the foundation for Arabic linguistics and even inspired comparative studies in other languages.

Technic & thoughts:

Sībawayh's technique was based on logical analysis, careful listening to native speakers (especially Bedouins), and systematic organization of language rules. He believed in preserving the purity of Arabic while explaining its grammar scientifically.

Death & legacy:

Sībawayh died young, around 796 AD, in Shiraz, Persia. Despite his short life, his legacy is enormous. His book 'al-Kitāb' remains a cornerstone of Arabic grammar, studied by scholars for over 1,200 years.

Critical/critics perspectives:

Some critics thought Sībawayh relied too heavily on Bedouin Arabic, which did not always match urban usage. Others argued that his rules were sometimes too rigid. However, most scholars praise him as the greatest authority in Arabic grammar.

Conclusion:

Sībawayh was a brilliant linguist whose work defined the science of Arabic grammar. His book 'al-Kitāb' secured his place as the father of Arabic linguistics, and his influence continues in the study of Arabic today.

6. Al-Jahiz & Al-Khwārizmī.

Al-Jahiz.

Introduction:

Abū Uthmān Amr ibn Baḥr al-Kinānī al-Baṣrī (776–868/869 AD), famously known as al-Jāḥiẓ, was a great Arab writer, thinker, and scholar. He is considered one of the most brilliant prose authors of the Abbasid period.

Full name, parent name:

His full name was Abū Uthmān Amr ibn Baḥr ibn Maḥbūb al-Kinānī al-Baṣrī. He was nicknamed al-Jāḥiẓ, meaning 'the one with bulging eyes.' He came from a poor family in Basra, Iraq and his father was a fishmonger.

Early life & background:

Al-Jāḥiẓ was born around 776 AD in Basra. Despite being from a humble background, he showed a great love for knowledge. He sold fish to support himself while studying. He was surrounded by the vibrant intellectual culture of Basra, which was a center of learning. Al-Jāḥiẓ was a Sunni Muslim connected with the Mutazilite sect (maslak) of theology, which valued reason and logic in religion. But not mainly known for following a particular sect (maslak) (Hanafi, Shafi'i, Maliki, or Hanbali) because at that time the 4 (hanafi, maliki, shafi, hanbali) sunni sect (maslak) were not fully formed; he was most strongly linked with the Mutazilite sect (maslak)—a rationalist movement in early Islam that emphasized reason and logic in religion. He did not belong to Shīa traditions.

Personality:

He was known for his sharp wit, curiosity, and humor. His nickname came from his physical appearance, but his personality shone through his intelligence and creativity.

Mutazilite sect (maslak) school of thought:

The Mutazilites were a group of Muslim thinkers in the 8th–10th AD who believed that reason (aql) and logic were very important in understanding religion. They wanted to make faith rational and logical. Their main ideas:

Allah is perfectly just and fair – Allah never does wrong, and humans are fully responsible for their own actions. The Quran is created – unlike traditional Sunni belief that the Quran is eternal, Mutazilites argued it was “created” by Allah in time. Free will – humans are free to choose good or bad; Allah does not force people. Reason and logic – they believed Muslims should use their minds, not just tradition, to understand faith. Justice and unity of Allah – they strongly rejected any idea that could weaken the belief in one Allah.

Al-Jāḥiẓ belonged to the Mutazilite sect (maslak), which focused a lot on reason and logic in religion. He was famous for questioning things that did not seem rational to him. One of the topics he wrote about was the ḥadīths narrated by Abū Huraira (r.a), (a close companion of the Prophet Muḥammad ﷺ) that Abū Huraira narrated more ḥadīths than almost any other companion, thousands in number, even though he only spent a few years with the Prophet ﷺ. Al-Jāḥiẓ and other rationalist scholars found this difficult to accept and argued that it was not possible for one person to report so many sayings in such a short time. He also suggested that some of these narrations might have been misunderstood or reported incorrectly.

However, most Sunni scholars strongly defended Abū Huraira (r.a). They explained that Abū Huraira had a very sharp memory & Prophet ﷺ himself prayed for Abu Huraira that, Allah blessed him with the ability to remember and preserve the sayings of the Prophet. This is why great scholars like Imām al-Bukhārī and Imām Muslim included many of Abū Huraira’s narrations in their most authentic ḥadīth collections. In summary, Al-Jāḥiẓ was critical of the large number of ḥadīths narrated by Abū Huraira, but mainstream Sunni Islam accepted Abū Huraira as a reliable and trustworthy source.

In which caliphate:

He lived during the Abbasid Caliphate, which was the golden age of Islamic culture, literature, and science.

His teacher; education & influences:

He studied under famous scholars of Basra, learning Arabic literature, poetry, theology, and natural sciences. He was deeply influenced by Mu‘tazilite theologians and also absorbed knowledge from Greek philosophy and Persian literature.

Career & historical context:

Al-Jāḥiẓ became a famous writer in Baghdad, the capital of the Abbasid Caliphate. He wrote for caliphs and noblemen, gaining patronage from rulers like al-Mamūn. His career reflected the intellectual richness of the Abbasid era, when translations of Greek works and debates in theology were flourishing.

Major work/books:

He wrote over 200 books, though many are lost. His most famous works include 'Kitāb al-Ḥayawān' (Book of Animals), an encyclopedia of animals mixed with literature, poetry, and anecdotes. Another major work is 'Kitāb al-Bayān wa al-Tabyīn' (Book of Eloquence and Demonstration), a masterpiece on Arabic rhetoric and literature. He also wrote 'Kitāb al-Bukhalā' (Book of Misers), a humorous and satirical work about human behavior. His books combine science, culture, and humor in a unique style.

Contribution in modern science:

His observations in 'Kitāb al-Ḥayawān' are considered early contributions to zoology. He discussed animal behavior, adaptation, and even ideas similar to natural selection. His works also influenced later Arabic literature and philosophy. He described the behavior and characteristics of animals, including adaptation to their environment (an early idea similar to natural selection). He also used humor and stories to make science enjoyable.

Technic & thoughts:

Al-Jāḥiẓ's technique combined scientific observation with storytelling. He believed in using reason, logic, and humor to explain complex ideas. As part of the Mu'tazilite tradition, he valued rational thinking in both science and religion.

Death & legacy:

He died around 868/869 AD in Basra. According to stories, he died when a pile of books fell on him in his library. His legacy is enormous in Arabic prose, literature, and early science. He remains one of the most original minds of the Abbasid age.

Critical/critics perspectives:

Some conservative scholars criticized him for his Mutazilite views, while others praised his intelligence and style. Modern scholars admire his ability to mix science, literature, and humor, making knowledge enjoyable.

Conclusion:

Al-Jāḥiẓ was a Sunni Muslim scholar and Mu'tazilite thinker whose writings made a lasting impact on Arabic literature, zoology, and culture. His unique style and rational approach continue to inspire readers and scholars worldwide.

Al-Khwārizmī

Introduction:

Muḥammad ibn Mūsā al-Khwārizmī (780–850 AD) was a famous Muslim mathematician, astronomer, and geographer. He is often called the 'father of algebra' because of his groundbreaking work in mathematics.

Full name, parent name:

His full name was Abū Abdullāh Muḥammad ibn Mūsā al-Khwārizmī. He was born in Khwarizm (in present-day Uzbekistan). His father was Mūsā, but little is known about his family background.

Early life & background:

Al-Khwārizmī was born around 780 AD in Khwarizm, a region in Central Asia. Later, he moved to Baghdad, the capital of the Abbasid Caliphate, which later became the greatest center of knowledge in the world.

Personality:

He was known for being intelligent, precise, and hardworking. He was a Sunni Muslim, though sources do not clearly mention if he followed a specific maslak (sect) for ex. Hanafi, Shafi'i, etc. Most historians simply describe him as a Sunni scholar working under the Abbasid Caliphs. (At that time, the sunni sect maslak were not fully developed).

In which caliphate:

He lived during the Abbasid Caliphate, under the rule of Caliphs al-Mamūn and al-Mutaṣim. This was a golden period of scientific discovery and translation of Greek and Indian works into Arabic.

His teacher; education & influences:

Details of his direct teachers are not well known, but he was strongly influenced by Greek, Indian, and Persian science. He studied at the House of Wisdom (Bayt al-Hikma) in Baghdad, which was established by Caliph al-Mamūn as a great center of learning.

Career & historical context:

Al-Khwārizmī worked as a scholar at the House of Wisdom in Baghdad. He was part of a team that translated and expanded scientific works from Greek, Indian, and Persian sources. His career took place in the Abbasid golden age of science.

Major work/books:

His most famous book is 'Kitāb al-Jabr wa al-Muqābala' (The Compendious Book on Calculation by Completion and Balancing). This book introduced algebra as a separate field of mathematics. He also wrote important works in astronomy and geography, such as 'Zīj al-Sindhind' (astronomical tables) and a revised world map. His Latin translations introduced algebra and Arabic numerals to Europe.

Contribution in modern science:

Al-Khwārizmī gave the world the term 'algebra' from his book. He also introduced the decimal positional number system and algorithms (his name is the origin of the word 'algorithm'). His works shaped European mathematics and science for centuries.

Technic & thoughts:

His method was systematic and practical. He solved mathematical problems step by step, focusing on clarity and application in trade, inheritance, and daily life. He believed in organizing knowledge so it could be useful to society.

Death & legacy:

He died around 850 AD in Baghdad. His works were translated into Latin in the 12th century and became the standard in European universities for hundreds of years. His legacy as the 'father of algebra' is recognized worldwide.

Critical/critics perspectives:

Some critics say his works were mostly based on earlier Greek and Indian sources, but his true achievement was organizing, expanding, and presenting them clearly. Others argue that his originality in algebra was unmatched in his time.

Conclusion:

Al-Khwārizmī was a Sunni Muslim scholar whose work has changed the history of mathematics, astronomy, and geography. He was not known to belong to any specific maslak (sect) but he is remembered as one of the greatest scientific minds of the Abbasid Golden Age. His contributions laid the foundation for modern mathematics and science.

7. Fatima Al-Fihri, Mariam al-‘Asturlābiyya & Al-Kindī.

Fatima Al-Fihri.

Introduction:

Fāṭimah al-Fihri (800's AD) was a Muslim woman who is known as the founder of the world's oldest existing university, the University of al-Qarawiyyīn in Fez, Morocco. She is remembered as a pioneer in education and Islamic learning.

Full name, parent name:

Her full name was Fāṭimah bint Muḥammad al-Fihri al-Qurashīyah. She was the daughter of Muḥammad al-Fihri, a wealthy merchant originally from Qayrawān (in modern-day Tunisia). She was also called as Ummul Banin (the woman who founded the world's first university)

Early life & background:

Fāṭimah al-Fihri was born in Qayrawān and later moved with her family to Fez, Morocco, where her father became successful. After her father and husband passed away, she inherited a large fortune. Her exact birth year is unknown, but it is estimated to be in around 800–810 AD.

Personality:

She was known for her piety, generosity, and dedication to learning. Fāṭimah al-Fihri was a devout Sunni Muslim, most likely following the Maliki sect (maslak), since it was the dominant maslak (sect) in North Africa at the time. She used her wealth to serve her community and Islam.

In which caliphate:

She lived during the Idrīsī dynasty in Morocco, a time when Islamic culture and scholarship were spreading across North Africa. This was after the Abbasid Caliphate had expanded influence across the Muslim world.

His teacher; education & influences:

Details about her direct teachers are not well recorded, but she was influenced by the Islamic emphasis on knowledge, education, and charity. The culture of Fez, with its scholars and merchants, shaped her vision.

Career & historical context:

Fāṭimah al-Fihri dedicated her life and wealth to founding a great center of learning. In 859 AD, she established the Qarawiyyīn Mosque and University in Fez. This institution became one of the leading universities in the Muslim world, attracting students from Africa, Spain, and the Middle East.

Major work/books:

Her greatest achievement was not writing books but founding the University of al-Qarawiyyīn. Over time, it developed a vast library and curriculum covering Quran, law, astronomy, grammar, mathematics, and natural sciences. It is recognized by UNESCO and Guinness World Records as the oldest continually operating university in the world.

The University of al-Qarawiyyīn in Fez, Morocco, has a long history of development:

- 1). 859 AD → founded by Fāṭimah al-Fihri as a mosque and madrasa (Qarawiyyīn Mosque).
- 2). 10th–11th centuries AD → expanded by the Idrīsī and later dynasties, adding more study halls and facilities.
- 3). 12th century AD → under the Almoravids and Almohads, the mosque-university was enlarged, and more subjects like grammar, medicine, mathematics, and astronomy were taught.
- 4). 14th century AD → the Marinid dynasty built libraries, added student housing, and strengthened its status as a great university.
- 5). Modern era (1963) → officially recognized by Morocco as a state university.
- 6). Today → UNESCO and Guinness World Records recognize it as the oldest continuously operating university in the world.

Contribution in modern science:

Through the Qarawiyyīn University, Fāṭimah al-Fihri contributed indirectly to science by creating a place where scholars studied mathematics, astronomy, medicine, and philosophy. Knowledge from her university spread into Europe during the middle Ages, helping to shape the European Renaissance.

Technic & thoughts:

Her approach was based on combining faith with knowledge. She believed wealth should be used for the benefit of society, especially for education and religion. Her vision was that education is a form of worship and service to Allah.

Death & legacy:

She died in Fez, Morocco, Her death year is uncertain, but she passed away around 859 AD, after the establishment of the University of al-Qarawiyyīn in 859 AD.

Her legacy continues through the University of al-Qarawiyyīn, which still operates today as a major center of Islamic learning. She is remembered as a role model for Muslim women and for the global pursuit of knowledge.

Critical/critics perspectives:

Some historians argue that details of her life are not fully clear due to limited sources, but the lasting existence of the Qarawiyyīn University proves her extraordinary contribution. Critics may question the extent of her direct involvement, yet she is universally admired for her generosity and vision.

Conclusion:

Fāṭimah al-Fihri was a devout Sunni Muslim woman, likely following the Maliki maslak (sect), whose dedication to faith and learning changed history. By founding the University of al-Qarawiyyīn, she left a legacy that continues to inspire the Muslim world and beyond.

Mariam al-Asturlābiyya

Introduction:

Mariam al-Asturlābiyya, also known as al-Ijliyyah, was a Muslim woman scientist and maker of astrolabes in the 10th century AD. She is one of the few known female scholars of the Islamic Golden Age, remembered for her skills in astronomy and instrument-making. An astrolabe is an ancient scientific instrument. It was used by astronomers, scientists, and travelers to: Measure the position of the sun, moon, planets and stars; Tell the time of day or night, Find the direction of Qibla (for Salah-prayer), Help in navigation and travel.

Full name, parent name:

Her full name was Mariam al-Ijliyyah al-Asturlābiyya. She was the daughter of an astrolabe maker, and her family name was 'al-'Ijliyyah' refers to her Arab tribal roots. Her father trained her in the art of making scientific instruments.

Early life & background:

Mariam al-Asturlābiyya was born in Aleppo, Syria, probably in the early 900s AD, during the Abbasid period. She grew up in Aleppo, Syria, during the Abbasid Caliphate period. From an early age, she learned about astronomy, mathematics, and instrument-making from her father. This environment helped her develop into a skilled scientist. Since she later worked for Sayf al-Dawla al-Hamadani (who ruled Aleppo from 944–967 AD), she must have been born before or during this time, most likely in the early-to-mid 900s AD.

Aleppo is a very old city in northern Syria. It lies between the Mediterranean Sea and the Euphrates River, making it an important center for trade and culture in history. Today, Aleppo is the second-largest city in Syria (after Damascus).

Personality:

Mariam was intelligent, precise and hardworking. She was deeply respected for her scientific skills at a time when few women were involved in science. While her exact Sunni or Shia identity is not recorded, she lived in a Sunni-majority region and is generally thought to have been Sunni.

In which caliphate:

She lived during the Abbasid Caliphate and worked under the Hamdanid dynasty in Aleppo, Syria, in the 10th century AD.

His teacher; education & influences:

Her main teacher was her father, who was an expert in making astrolabes. She also learned from other scientists of Aleppo and was influenced by earlier Muslim astronomers and Greek works translated into Arabic.

Career & historical context:

Mariam became famous in Aleppo as an astrolabe maker. Her work was highly valued by rulers and scholars. She was employed by Sayf al-Dawla, the ruler of Aleppo, who supported scholars and scientists at his court. This was a time when Islamic astronomy and mathematics were flourishing.

Major work/books:

Mariam did not write books that are known to us, but her major contribution was the practical designs and improvement of the astrolabe, a scientific instrument used to calculate time, measure the position of stars, and assist in navigation.

Contribution in modern science:

Her improvements in the astrolabe influenced the accuracy of astronomical observations and time-keeping. The astrolabe later became very important in both the Islamic world and Europe for astronomy, navigation, and prayer (Salah) calculations.

Technic & thoughts:

Mariam worked with precision and creativity. She built on earlier designs of the astrolabe and improved them to make them more useful for scientists and navigators. Her method showed careful observation and craftsmanship.

Death & legacy:

The exact year of her death is not known, but she lived in the 10th century AD. Her legacy is remembered as one of the few women who made a significant mark in the history of Islamic science. She is often celebrated today as a role model for women in STEM fields.

Critical/critics perspectives:

While she was praised for her skills, some critics may have overlooked her contributions simply because she was a woman in a male-dominated field. Modern historians, however, value her work as an important part of Islamic science.

Conclusion:

Mariam al-Asturlābiyya was a pioneering Muslim woman scientist of the Abbasid age. Though she did not leave behind books, her skill in making and improving astrolabes helped advance astronomy and navigation. She is believed to have been Sunni, and she remains a symbol of women's contributions to science in the Islamic Golden Age.

Abū Yūsuf Yaqūb ibn Ishāq al-Kindī

Introduction:

Abū Yūsuf Yaqūb ibn Ishāq al-Kindī (801–873 AD) was a famous Muslim philosopher, mathematician, physician, and scientist. He is often called the 'Philosopher of the Arabs' because of his major role in introducing Greek philosophy to the Islamic world.

Full name, parent name & full detail:

His full name was Abū Yūsuf Yaqūb ibn Ishāq ibn al-Ṣabbāḥ al-Kindī. He was born into a noble Arab family from the Kindah tribe. His father, Ishāq, was the governor of Kufa under the Abbasid Caliphate.

Early life & background:

Al-Kindī was born around 801 AD in Kufa, Iraq. He grew up in a wealthy and educated family, which gave him access to learning and libraries. Later, he moved to Baghdad, the intellectual capital of the Abbasid Caliphate.

Personality:

He was known for his intelligence, love of wisdom, and deep curiosity about all fields of knowledge. Al-Kindī was a Sunni Muslim, most likely following the Hanafi sect (maslak), which was common in Iraq at that time. He tried to balance philosophy with Islamic faith.

In which caliphate:

He lived during the Abbasid Caliphate, especially under Caliphs al-Mamūn and al-Mutaṣim, who supported philosophy, science, and the translation movement.

His teacher; education & influences:

He studied in Kufa and Baghdad, learning from Arab and Persian scholars. He was strongly influenced by Greek philosophy, especially Aristotle and Plato, through translations. He also learned mathematics, medicine, and astronomy from scholars at the House of Wisdom.

Career & historical context:

Al-Kindī worked in Baghdad at the House of Wisdom, where Greek works were translated into Arabic. He wrote books on philosophy, logic, mathematics, astronomy, optics, medicine, music, and cryptography. He served as a court philosopher under Caliph al-Mamūn and later al-Mutaṣim. His career reflects the peak of Abbasid intellectual life.

Major work/books:

Al-Kindī wrote over 260 works, though many are lost. Some of his famous books include 'First Philosophy,' where he tried to harmonize Greek philosophy with Islamic beliefs; 'the Use of the Indian Numerals,' which helped spread the decimal system; and works on optics, music theory, medicine, and geometry. He also wrote about astrology and chemistry, though with less accuracy.

1. First Philosophy (book) (Kitāb fī al-Falsafa al-Ūlā):

It is his most famous philosophical work. He tried to combine Greek philosophy (especially Aristotle) with Islamic belief. Discussed the nature of Allah, creation and knowledge.

2. The Use of the Indian Numerals (book) (Kitāb fī Istimāl al-Adad al-Hindī):

It introduced Indian numerals (which became “Arabic numerals”) to the Muslim world & helped spread the decimal number system that we use today.

3. Optics:

He wrote on work on light, vision, and reflection. Discussed how the eye sees, and how light interacts with objects. Influenced later scientists like Ibn al-Haytham.

4. Music:

He explained the mathematical basis of music & showed how sound, harmony, and rhythm can be studied scientifically.

5. Medicines and Drugs:

One of the earliest works in pharmacology. He explained how to measure the strength and effects of drugs using scientific methods.

6. Cryptography (Code Breaking):

He wrote about secret writing and codes also introduced frequency analysis, a method still used in modern code-breaking.

Contribution in modern science:

Al-Kindī helped introduce 'Indian numerals' (later known as Arabic numerals) to the Muslim world and Europe. He made contributions to cryptography, showing how to break codes using frequency analysis. In medicine, he studied the effects of drugs and wrote about how to test their strength scientifically.

Technic & thoughts:

He believed knowledge should combine reason and faith. His technique was logical analysis, influenced by Aristotle. He rejected superstition and tried to make philosophy serve religion. He also emphasized mathematics as a foundation of science.

Death & legacy:

Al-Kindī died around 873 AD in Baghdad. His works influenced later Muslim philosophers like al-Fārābī and Ibn Sīnā (Avicenna). In Europe, Latin translations of his works shaped medieval philosophy and science. He is remembered as the first true Muslim philosopher.

Critical/critics perspectives:

Some orthodox scholars criticized him for relying too much on Greek philosophy. However, many respected his efforts to balance philosophy with Islam. Modern historians praise him as a pioneer who introduced rational thought into the Islamic world.

Conclusion:

Al-Kindī was a Sunni Muslim scholar and philosopher, most likely linked with the Hanafi tradition. His wide-ranging works in philosophy, science, and mathematics made him one of the greatest minds of the Abbasid Golden Age. He is rightly remembered as the 'Philosopher of the Arabs.'

8. Abbās ibn Firnās & Al-Dīnawarī.

Abbās ibn Firnās.

Introduction:

Abbās ibn Firnās (810–887 AD) was a Muslim polymath, inventor, engineer, poet, and early aviation pioneer from Al-Andalus (Islamic Spain). He is most famous for attempting one of the earliest known human flights.

Full name, parent name:

His full name was Abbās Abū al-Qāsim ibn Firnās ibn Wardūs al-Takrūnī. Little is known about his parents, but he belonged to a respected Berber family.

Early life & background:

He was born in 810 AD in Ronda, Al-Andalus (in the province of Málaga, Spain), during the rule of the Umayyad Emirate of Córdoba. He grew up in a society that valued science, poetry, and innovation, which encouraged his curiosity.

Personality:

Abbās ibn Firnās was known for his creativity, courage, and love of experiments. He was deeply religious and a Sunni Muslim, most likely connected with the Maliki sect (maslak), since it was the dominant maslak (sect) in Al-Andalus. His personality was a blend of scientific curiosity and poetic sensitivity.

In which caliphate:

He lived during the Umayyad Emirate of Córdoba, which was a center of Islamic culture, science, and art in medieval Spain.

His teacher; education & influences:

Details of his direct teachers are unclear, but he was educated in Córdoba, the intellectual hub of Al-Andalus. He was influenced by Greek scientific works, Islamic scholars, and the cultural environment of Córdoba.

Career & historical context:

Ibn Firnās was a court scholar and inventor in Córdoba, where he entertained rulers with his scientific experiments and poetry. He studied astronomy, mechanics, music, and glass-making. His career reflects the flowering of science in Islamic Spain during the 9th century.

Major work/books:

Ibn Firnās is most famous for his flight (flying) experiment, where he built a glider-like device and successfully flew a short distance before crash landing. He also worked on making clear glass from sand, created lenses for reading, and improved water clocks. He studied astronomy and designed a planetarium-like device showing stars and planets. Although he did not leave books, his inventions and experiments became legendary.

Contribution in modern science:

He is remembered as one of the earliest pioneers of aviation. His attempt at flying inspired later inventors. His work in glass-making and optics helped prepare the way for the development of lenses and spectacles in Europe. He contributed to the early history of engineering and experimental science.

Technic & thoughts:

Ibn Firnās believed in learning through experimentation. He combined observation, creativity, and practical application. He was not afraid of failure and saw experiments as a path to discovery.

Death & legacy:

He died in 887 AD in Córdoba. Though his flight ended in a crash, he survived and reflected on his mistake of not adding a tail for balance. His legacy as an inventor, aviator, and thinker lives on. A crater on the Moon and an airport in Baghdad are named after him.

Critical/critics perspectives:

Some historians doubt the full details of his flight experiment, but most agree he made genuine contributions to early aviation and science. Critics say legends may have exaggerated his achievements, but his reputation as a pioneer remains strong.

Conclusion:

Abbās ibn Firnās was a Sunni Muslim polymath, most likely Maliki, whose daring experiments and inventions placed him centuries ahead of his time. He symbolizes the spirit of curiosity and innovation in the Islamic Golden Age, especially in Al-Andalus.

Abū Ḥanīfa Aḥmad ibn Dāwūd al-Dīnawarī

Introduction:

Abū Ḥanīfa Aḥmad ibn Dāwūd al-Dīnawarī (815–896 AD) was a famous Muslim scholar, botanist, astronomer, mathematician, historian, and linguist. He is often remembered as one of the earliest scientists to write about plants in detail and as an important figure of the Islamic Golden Age.

Full name, parent name:

His full name was Abū Ḥanīfa Aḥmad ibn Dāwūd al-Dīnawarī. His father's name was Dāwūd, but little is known about his family background.

Early life & background:

He was born around 815 AD in Dīnawar (a town in western Iran). Growing up in Persia, he was exposed to both Arabic and Persian cultures. His environment gave him a love for languages, nature, and science. Later, he traveled to study in major Islamic centers of learning.

Personality:

Al-Dīnawarī was known for his curiosity, sharp mind, and passion for natural sciences. He was also deeply religious and followed Islam faithfully. Most historians describe him as a Sunni Muslim, though it is not clear which sect (maslak) he followed. He is not associated with Shia traditions.

In which caliphate:

He lived during the Abbasid Caliphate, a period of major scientific progress, translations of Greek works, and cultural development.

His teacher; education & influences:

He studied under many scholars in Kufa, Basra, and Baghdad. He was influenced by Greek science, especially works on astronomy, mathematics and combined them with Islamic scholarship. He also studied Arabic language and grammar with leading scholars of his time.

Career & historical context:

Al-Dīnawarī became a respected scholar and scientist, writing on a wide range of subjects. His career took place during the height of Abbasid intellectual life, when scholars were encouraged to research in mathematics, astronomy, medicine and natural sciences.

Major work/books:

His most famous work is 'Kitāb al-Nabāt' (The Book of Plants), one of the earliest detailed books on botany. In it he described around 637 plants, their growth, and their medical uses.

He also wrote works on astronomy, such as 'Book of the Stars,' and a universal history called 'Kitāb al-Akhhbār al-Ṭiwāl' (The Book of Long Accounts). He contributed to mathematics with works on arithmetic and geometry, and to linguistics with works on Arabic grammar.

Contribution in modern science:

Al-Dīnawarī is often called the 'father of Arabic botany.' His knowledge about plants influenced later Islamic and European scientists. His astronomy and mathematics also laid foundations for later developments. His historical writings preserved early Islamic and Persian history.

Technic & thoughts:

He combined observation with earlier knowledge, always seeking to test information with real examples. His method was both descriptive and analytical. He believed that studying nature was a way to understand creation.

Death & legacy:

He died around 896 AD in Dīnawar. His works continued to be studied for centuries. His 'Book of Plants' especially made a lasting impact on botany in the Muslim world and beyond.

Critical/critics perspectives:

Some of his works are lost, and critics say later historians gave him less attention compared to other scholars. Still, modern researchers recognize his pioneering role in botany and his wide knowledge across disciplines.

Conclusion:

Abū Ḥanīfa al-Dīnawarī was a Sunni Muslim polymath whose contributions to botany, astronomy, mathematics, and history make him one of the great scientists of the Islamic Golden Age. His balanced method of observation and analysis left a legacy of knowledge for both the Muslim world and Europe.

9. Alī ibn Sahl Rabban al-Ṭabarī & Abū Jafar Muḥammad ibn Jarīr al-Ṭabarī

Alī ibn Sahl Rabban al-Ṭabarī

Introduction:

Alī ibn Sahl Rabban al-Ṭabarī (838–870 AD) was a Persian Muslim scholar, physician, and philosopher. He is remembered as one of the earliest great doctors of the Islamic Golden Age and a pioneer of medical encyclopedias.

Full name, parent name:

His full name was Alī ibn Sahl Rabban al-Ṭabarī. His father, Sahl Rabban, was a respected scholar and physician of Jewish origin who converted to Islam. The family background gave him access to both religious and scientific knowledge.

Early life & background:

Al-Ṭabarī was born around 838 AD in Ṭabaristān (northern Iran). He was raised in a scholarly environment, learning medicine, philosophy, and languages from his father and local scholars. His upbringing helped him become a bridge between different cultures and sciences.

Personality:

He was known for being wise, calm, and deeply dedicated to learning. He was a devout Muslim. He is generally considered a Sunni Muslim, most likely connected with the Hanafi maslak (sect), but he is mainly remembered as a physician and scholar rather than a sectarian figure.

In which caliphate:

He lived during the Abbasid Caliphate, a period of great progress in medicine, science, and philosophy. He worked under the patronage of Caliph al-Mutawakkil in Baghdad.

His teacher; education & influences:

His father was his first teacher in medicine and philosophy. He later studied with leading physicians and scholars of the Abbasid court. He was influenced by Greek medical texts, especially Galen and Hippocrates, as well as Indian and Persian medicine.

Career & historical context:

Al-Ṭabarī became a famous doctor in Baghdad, serving at the Abbasid court. His career took place during the peak of translation and scientific activity, when Greek, Persian, and Indian medical knowledge was being translated into Arabic.

Major work/books:

His most famous work is 'Firdaws al-Ḥikmah' (Paradise of Wisdom), one of the earliest and most comprehensive medical encyclopedias in Arabic. It covered topics such as anatomy,

physiology, hygiene, psychology and treatment of diseases. It also included sections on philosophy, astronomy, zoology, and ethics. This book influenced later great physicians like al-Rāzī and Ibn Sīnā. He also wrote on ethics and religion.

Contribution in modern science:

Al-Ṭabarī's encyclopedia 'Firdaws al-Ḥikmah' was the first of its kind in the Muslim world. It systematized medical knowledge and provided practical treatments. His work laid the foundation for later Islamic and European medicine. He also helped develop the idea that psychology and mental health were part of medical science.

Technic & thoughts:

He combined observation with classical knowledge. He emphasized hygiene, balanced diets, and mental health. His thought reflected both rational scientific methods and religious ethics, showing that medicine was both a science and a moral duty.

Death & legacy:

He died around 870 AD in Baghdad. His works were studied by later physicians and remained influential for centuries. Although less famous today than al-Rāzī or Ibn Sīnā, he was a pioneer in medical encyclopedias and holistic health.

Critical/critics perspectives:

Some critics say he borrowed too much from Greek medicine, but his true achievement was organizing and expanding this knowledge into Arabic, making it accessible for future scholars. Modern historians recognize him as a crucial link in the development of Islamic medicine.

Conclusion:

Alī ibn Sahl Rabban al-Ṭabarī was a Sunni Muslim scholar and physician whose medical encyclopedia 'Firdaws al-Ḥikmah' laid the foundation for later Islamic medicine. His integration of physical, mental, and spiritual health shows his depth as both a doctor and philosopher, making him one of the great pioneers of the Islamic Golden Age.

Abū Jafar Muḥammad ibn Jarīr al-Ṭabarī

Introduction:

Abū Jafar Muḥammad ibn Jarīr al-Ṭabarī (839–923 AD) was one of the greatest Muslim historians, Qurān commentators, and jurists of the Abbasid era. He is remembered for writing one of the earliest and most comprehensive histories and Quranic commentaries.

Full name, parent name:

His full name was Abū Jafar Muḥammad ibn Jarīr ibn Yazīd ibn Kathīr al-Ṭabarī. His father's name was Jarīr. He came from a middle-class Persian family that valued education.

Early life & background:

Al-Ṭabarī was born in 839 AD in Amol, Ṭabaristān northern Iran). From a young age, he showed extraordinary memory and intelligence. He memorized the Qurān by the age of seven and led (Salah) prayers by the age of eight. At twelve, he left home to travel and study across the Islamic world.

Personality:

He was known for his discipline, sharp memory, independence and love for knowledge. He was a Sunni Muslim, often associated with the Shafi sect (maslak), though he later developed his own independent legal opinions. He was not Shia. His balanced and careful scholarship earned him respect even among critics.

In which caliphate:

He lived during the Abbasid Caliphate, when Baghdad was the center of learning and culture. He witnessed both the height of Abbasid power and its political struggles.

His teacher; education & influences:

Al-Ṭabarī studied under famous scholars in Rayy, Basra, Kufa, Egypt, and Baghdad. He learned Hadith, Qurān, and law from leading scholars of the Shafi and Hanafi sect (maslak). His wide travels exposed him to different Islamic traditions.

Career & historical context:

He settled in Baghdad, where he wrote, taught, and became famous for his knowledge of history, Quranic exegesis, and law. He lived at a time when Sunni and Shia debates were strong, and his works reflect careful neutrality. His career reflects the richness of Abbasid intellectual life.

Major work/books:

His two greatest works are:

(1) 'Tārīkh al-Rusul wa al-Mulūk' (History of Prophets and Kings), also known as 'Tārīkh al-Ṭabarī.' This is one of the earliest and most detailed world histories, covering from creation till his time.

(2) 'Jāmi' al-Bayān an Tawīl Āy al-Qurān' (The Commentary on the Qurān), also known as 'Tafsīr al-Ṭabarī.' It is one of the earliest and most authoritative Qurānic commentaries, using hadith, language, and reason. He also wrote works on Islamic law and theology.

Contribution in modern science:

Though not a scientist, his contributions to history and Quranic studies shaped Islamic thought. His history is a primary source for early Islam, and his Tafsīr influenced later scholars across the Muslim world. Western historians also rely on his works as key sources.

Technic & thoughts:

Abū Jafar al-Ṭabarī's technique was to gather different reports and narrations, present them with their chains of transmission and then analyze which ones were most reliable. He valued accuracy, neutrality and completeness. In Tafsīr, he used language, reason, and hadith together.

Death & legacy:

He died in 923 AD in Baghdad. At the time, some groups opposed him due to his independent views, but he was buried quietly. Later generations recognized his works as treasures of Islamic scholarship. Today, he is remembered as one of the greatest historians and Qurān commentators of all time.

Critical/critics perspectives:

Some criticized him for being too neutral, simply reporting different views without always giving a final judgment. Others accused him of being too independent in law. However, modern scholars admire his honesty, balance, and vast knowledge.

Conclusion:

Abū Jafar al-Ṭabarī was a Sunni Muslim scholar, often linked with the Shafi sect (maslak) but independent in his views. His works in history and Quranic commentary remain unmatched, making him one of the most important intellectuals of the Abbasid Golden Age.

10. Abu Zayd Al-Balkhī, Ahamd Al-Farghani & Al-Battani.

Abū Zayd al-Balkhī

Introduction:

Abū Zayd al-Balkhī (850–934 AD) was a famous Muslim scholar, geographer, philosopher, and physician. He is remembered for his wide knowledge and especially for his pioneering work in psychology and mental health.

Full name, parent name:

His full name was **Abū Zayd Aḥmad ibn Sahl al-Balkhī**. His father's name was **Sahl**. He came from a Persian background and grew up in a region known for producing great scholars.

Early life & background:

He was born in 850 AD in **Balkh** (in Afghanistan). From a young age, he showed intelligence and curiosity. He grew up in the eastern part of the **Abbasid Caliphate**, which was a center of learning and culture. His upbringing gave him exposure to Persian, Greek, and Islamic knowledge.

Personality:

Al-Balkhī was known for being wise, balanced, and deeply thoughtful. He was a **Sunni Muslim**, following the **Hanafi sect (maslak)**, which was common in his region. His personality combined religious devotion with a love for science and philosophy.

In which caliphate:

He lived during the **Abbasid Caliphate**, when scientific and philosophical research was supported by rulers and wealthy patrons.

His teacher; education & influences:

He studied under **al-Kindī**, the famous philosopher known as the 'Philosopher of the Arabs.' This greatly influenced his thinking. He also studied medicine, philosophy, geography, and literature from leading scholars of his time.

Career & historical context:

Al-Balkhī worked as a teacher, writer, and physician. He lived at a time when Muslim scholars were collecting and expanding Greek knowledge while also developing original ideas. His works reflect the rich intellectual climate of the **Abbasid era**.

Major work/books:

His most famous book:

1. **Masālih al-Abdān wa al-Anfus'** (Sustenance for Bodies and Souls), which is considered one of the earliest works on psychosomatic medicine. In it, he discussed physical and mental health, depression, anxiety, and therapies. The book is divided into two main parts:

Abdān (Bodies): Focuses on physical health, hygiene, diet, exercise and how to prevent illnesses.

Anfus (Souls): Focuses on mental health, emotions, depression, anxiety, and methods for psychological healing.

He described different types of depression, including what we would call clinical depression and situational depression today. Suggested therapies like positive thinking, relaxation, lifestyle changes, and talking with wise people.

Cognitive Therapy: It is a type of psychological treatment that helps people deal with problems like depression, anxiety, and stress. The word “cognitive” means thoughts. The main idea: The way we think affects how we feel and how we act.

How it Works:

Many problems come from negative or false thoughts (for example: “*I am useless,*” “*Nothing will ever get better*”). Cognitive therapy teaches people to identify these negative thoughts and replace them with healthier, more realistic ones. When thoughts change → emotions and behaviors also improve.

2. Kitāb al-Masālik wa al-Mamālik (Book of Routes and Kingdoms):

It is a geographical work, describing routes, regions, climates, and kingdoms of the known world. The book gives detailed descriptions of different lands, their cultures, climates, and resources. Also mapped out trade routes, important for travelers and merchants, included information on both political boundaries and physical geography. It helped in developing Islamic geography & influenced later geographers and map-makers in the Islamic world. Also provided practical knowledge for travelers, merchants, and rulers.

Contribution in modern science:

Al-Balkhī is seen as a pioneer of psychology and cognitive therapy. He described mental disorders like depression, anxiety and suggested treatments such as lifestyle changes, relaxation, and positive thinking. His geography books helped improve Islamic knowledge of the world.

Technic & thoughts:

He believed in a holistic approach to health, combining care for the body and the mind. He emphasized prevention, balance and importance of inner peace. His techniques were ahead of his time and similar to some modern psychological practices.

Death & legacy:

He died in 934 AD. Though many of his works were lost, his surviving ideas influenced later Muslim physicians such as Ibn Sīnā (Avicenna). Today, modern scholars recognize him as an early pioneer of psychology and medicine.

Critical/critics perspectives:

Some critics argue that his works were overshadowed by greater names like Avicenna (Ibn Sina), which led to less recognition in history. However, his contributions to psychology and geography are now being rediscovered and praised.

Conclusion:

Abū Zayd al-Balkhī was a Sunni Muslim scholar of the Hanafi sect (maslak). His pioneering work in psychology, geography, and medicine makes him one of the great intellectuals of the Abbasid Golden Age. He is rightly remembered as a thinker who cared for both body and soul.

Ahmad Al-Farghani

Introduction:

Aḥmad ibn Muḥammad ibn Kathīr al-Farghānī (exact birth year is not known) (861 AD) was a famous Muslim astronomer, mathematician, and engineer of the Abbasid Golden Age. He is best known in Europe as Alfraganus, and his works were highly influential in both the Islamic world and medieval Europe.

Full name, parent name:

His full name was Aḥmad ibn Muḥammad ibn Kathīr al-Farghānī. He was born in Farghāna, a region in present-day Uzbekistan. His father's name was Muḥammad ibn Kathīr. His Persian background gave him access to rich cultural and scholarly traditions.

Early life & background:

He was born in the early 9th century in Farghāna. Not much is known about his childhood, but he grew up in a scholarly environment of Central Asia, which produced many scientists of the Abbasid era. Later, he moved to Baghdad, the center of the Abbasid Caliphate, to work on astronomy.

Personality:

Al-Farghānī was known for his precision, curiosity, and ability to explain complex ideas clearly. He was a Sunni Muslim and like many scholars of his region, most likely followed the Hanafi sect (maslak). His personality reflected devotion to science and service to society.

In which caliphate:

He lived during the Abbasid Caliphate, mainly under the rule of Caliph al-Mamūn and his successors. This was the period of the 'House of Wisdom' in Baghdad, when scientific research and translation were strongly supported.

His teacher; education & influences:

He was part of the scientific circle of al-Mamūn and was influenced by Greek astronomy, especially Ptolemy. He learned from the works of earlier scholars like al-Khwārizmī and worked alongside other astronomers in Baghdad.

Career & historical context:

Al-Farghānī worked in the House of Wisdom in Baghdad, where he helped measure the size of the Earth and carried out astronomical observations. He later moved to Egypt, where he worked on engineering projects, including improving the Nilometer, an instrument for measuring the river Nile's flood levels. His career shows the connection between science and practical life in the Abbasid era.

Major work/books:

His most important book is 'Kitāb fī Jawāmi Ilm al-Nujūm' (Compendium of the Science of the Stars), which summarized Ptolemy's Almagest in simpler form. This

book was translated into Latin in the 12th century as 'Alfragani' and became a key astronomy textbook in Europe for centuries. He also wrote about the construction and use of the astrolabe and contributed to geographical knowledge by giving values for the Earth's circumference.

Contribution in modern science:

Al-Farghānī's work gave more accurate values for the size of the Earth and distances between planets. His Latin translations influenced European scholars like Dante and Copernicus. His practical work on the Nilometer showed his skill as both a scientist and engineer.

Technic & thoughts:

He believed in combining theory with observation. His method was to simplify complex Greek texts to make them useful for both scholars and practical applications. He emphasized accuracy and clarity in scientific writing.

Death & legacy:

He died around 861 AD in Egypt. His works continued to be studied in both the Islamic world and Europe for centuries. Today, he is remembered as one of the key transmitters of Greek astronomy to later civilizations.

Critical/critics perspectives:

Some critics note that al-Farghānī did not create many new theories but relied heavily on Ptolemy. However, his genius work was, simplifying and correcting earlier works, making them accessible and useful for both the Islamic and European worlds.

Conclusion:

Aḥmad al-Farghānī was a Sunni Muslim scholar, most likely Hanafi, whose works on astronomy and engineering left a deep impact on both the Islamic Golden Age and Europe. His ability to explain and apply science makes him one of the important scientists of the Abbasid era.

Al-Battani

Introduction:

Al-Battānī (858–929 AD), known in Latin as Albategnius, was one of the greatest Muslim astronomers and mathematicians of the Islamic Golden Age. His precise astronomical observations and calculations had a lasting influence on both the Islamic world and Europe.

Full name, parent name:

His full name was Abūdullāh Muḥammad ibn Jābir ibn Sinān al-Raqqī al-Ḥarrānī al-Ṣābi al-Battānī. His father's name was Jābir ibn Sinān, who was also known as a maker of scientific instruments.

Early life & background:

Al-Battānī was born in 858 AD in Harran (Turkey) into a Sabian family, but later moved to Raqqa (Syria), where he carried out much of his scientific work. Growing up in a Sabian family, he was exposed to traditions of astronomy and mathematics from an early age.

Personality:

He was known for his accuracy, dedication to observation and scientific curiosity. He did not belong to the Sabian religious community though born in Harran (region famous for Sabian community); he valued astronomy and mathematics. There is difference of opinion whether he was Muslim or not but reference suggest that he was a Muslim.

The Sabians were a small religious group that lived mainly in Harran (in today's Turkey/Syria region) during the early Islamic period. They are mentioned in the Qur'an as "People of the Book" alongside Jews and Christians. Their exact beliefs are not fully clear, but they worshipped one Allah while also respecting the planets and stars, which they believed influenced the universe. The Sabians followed rituals linked to astronomy and were deeply interested in mathematics, philosophy, and science.

In which caliphate:

He lived during the Abbasid Caliphate, particularly under rulers who encouraged scientific study and astronomical research.

His teacher; education & influences:

His father, Jābir ibn Sinān, was his first teacher and trained him in instrument-making and astronomy. He was also influenced by Greek works, especially Ptolemy's Almagest, but he improved upon them through his own observations.

Career & historical context:

Al-Battānī worked mainly in Raqqa, where he built an observatory and carried out decades of precise observations of the sun, moon, and planets. His career took place during the height of Abbasid support for science and the translation of Greek works into Arabic.

Major work/books:

His most famous book is 'Kitāb al-Zīj' (The Book of Astronomical Tables), which included his observations and calculations. Kitāb al-Zīj (The Book of Astronomical Tables) was the most famous work of al-Battānī, written in the 9th century. In this book, he recorded decades of his precise astronomical observations, including the movements of the sun, moon, and planets. He corrected errors in Ptolemy's calculations and gave more accurate values for the length of the solar year, the precession of the equinoxes, and the orbits of planets. The book also introduced improved trigonometric methods, using sine, cosine, and tangent functions for astronomical calculations. Later translated into Latin, it became one of the most important sources for European astronomers, including Copernicus, and remained a key reference in astronomy for centuries.

Contribution in modern science:

Al-Battānī's accurate values for the solar year and planetary motions influenced both Islamic and European astronomy. His methods helped shape later scientific developments, and his work was directly cited by Copernicus in the 16th century. He also contributed to trigonometry by introducing functions such as sine and tangent in modern form.

Technic & thoughts:

His technique was based on long-term, careful observation combined with mathematical analysis. He believed that science required both theory and practice. He was one of the first to apply trigonometry systematically in astronomy.

Death & legacy:

He died in 929 AD near Samarra, Iraq. His works continued to influence astronomers for centuries. His book remained a standard reference in both the Muslim world and medieval Europe.

Critical/critics perspectives:

Some critics argued that al-Battānī relied too heavily on Ptolemy, but modern historians recognize that he corrected and improved Ptolemaic astronomy with greater precision. His reputation as one of the most important astronomers of the medieval world is undisputed.

Conclusion:

Al-Battānī was a Muslim of Arab origin from tribe of Battan; he became one of the most influential figures of the Islamic Golden Age. His precise observations and mathematical methods laid the foundation for modern astronomy and trigonometry, making him a true pioneer in science. Ibn al-Nadim, Al-Biruni & Ibn Al-Qifti described Al-Battani as a Muslim & is from Arab origin because Al-Battani used Islamic calendar references, Quranic phrases etc. Modern scholars such as George Sarton, A.I. Sabran & David A. King agree that Al-Battani was a Muslim of Arab origin from the tribe of Battan.

11. Al-Rāzī & Al-Farabi.

Al-Rāzī.

Introduction:

Al-Rāzī (865–925 AD), known in the West as Rhazes, was one of the greatest physicians, chemists, and philosophers of the Islamic Golden Age. He made groundbreaking contributions to medicine, chemistry (alchemy) and philosophy and is remembered as a pioneer of experimental science.

Full name, parent name:

His full name was Abū Bakr Muḥammad ibn Zakariyyā al-Rāzī. His father's name was Zakariyyā. He grew up in a Persian family and his nisbah 'al-Rāzī' comes from his birthplace, Rayy.

Early life & background:

Al-Rāzī was born in 865 AD in Rayy (Tehran-Iran). In his youth, he was interested in music and alchemy, but later turned to medicine and philosophy. He studied medicine in Baghdad and became a leading physician of his time.

Personality:

Al-Rāzī was known for being independent, rational, and compassionate. He strongly believed in treating patients with kindness and insisted that doctors should always place the patient's welfare first. He was a Sunni Muslim, most likely following the Hanafi sect (maslak), but he was also a free thinker who sometimes criticized traditional ideas. This made him respected but also controversial.

In which caliphate:

He lived during the Abbasid Caliphate, mainly under Caliph al-Mutaḍid and his successors. This was a time when Baghdad was a great center of medical learning.

His teacher; education & influences:

He studied medicine under Alī ibn Sahl Rabban al-Ṭabarī, a famous physician. He was influenced by Greek thinkers like Galen and Hippocrates, but he also went beyond them by stressing experimentation and observation.

Career & historical context:

Al-Rāzī worked as the chief physician at hospitals in Rayy and Baghdad. He treated patients, taught students and wrote many medical encyclopedias. He also contributed to chemistry and philosophy. His career reflects the spirit of the Abbasid Golden Age, which valued both science and philosophy.

Major work/books:

Some of his most important works include:

- (1) *Kitāb al-Ḥāwī* (The Comprehensive Book on Medicine), a massive encyclopedia in 25 volumes that gathered knowledge from Greek, Indian, and earlier Islamic sources, but also added his own case studies and medical observations. It was so influential that it was later translated into Latin and used in European universities for centuries.
- (2) *Kitāb al-Manṣūrī* (The Book of Medicine Dedicated to al-Manṣūr), a medical textbook written for the Samanid ruler al-Manṣūr. It summarized key topics of medicine and became a standard reference in both the Islamic world and Europe.
- (3) *Kitāb al-Jadarī wa al-Ḥaṣbah* (Book on Smallpox and Measles), the first detailed medical study that clearly separated the symptoms of these two diseases, which were often confused before him. This book saved many lives and was widely read for centuries. Besides medicine, al-Rāzī also wrote books on philosophy, chemistry, and alchemy, showing his wide knowledge and curiosity.

Contribution in modern science:

Al-Rāzī introduced clinical observation, experimental methods, and ethics in medicine. He was one of the first to describe smallpox and measles accurately. His books were translated into Latin and used in European universities for centuries. He also helped lay the foundation of modern chemistry by moving alchemy toward practical science.

Technic & thoughts:

He emphasized evidence-based medicine, observation, and experimentation. He rejected blind following of authority and encouraged questioning and testing. He also believed in the balance of body and soul for health.

Death & legacy:

Al-Rāzī died in 925 AD in Rayy, possibly after suffering from blindness in his last years. His all work remained standard references in both the Islamic and European worlds for centuries. Today, he is remembered as one of the greatest physicians of all time.

Critical/critics perspectives:

Some religious scholars criticized him for his philosophical views and for questioning certain traditions. Others accused him of relying too much on Greek sources. However, most historians agree that his original observations and methods made him far ahead of his time.

Conclusion:

Al-Rāzī was a Sunni Muslim, likely Hanafi, but also an independent thinker. His contributions to medicine, chemistry, and philosophy were revolutionary, making him one of the greatest figures of the Islamic Golden Age and a true pioneer of science.

Al-Farabi.

Introduction:

Al-Fārābī (872–950 AD) was one of the most important philosophers and scientists of the Islamic Golden Age. He was a master of logic, political philosophy, music and science, often called 'The Second Teacher' (after Aristotle) in Islamic philosophy.

Full name, parent name:

His full name was Abū Naṣr Muḥammad ibn Muḥammad ibn Ṭarkhān ibn Awzalagh al-Fārābī. His father was of Turkish origin and worked as a military officer, which gave al-Fārābī a mixed cultural background.

Early life & background:

He was born around 872 AD in Farab (Kazakhstan). From a young age, he was interested in philosophy, languages, and music. His Central Asian background connected him to both Persian and Turkic cultures and he later moved to Baghdad to pursue higher studies.

Personality:

Al-Fārābī was known for his deep thought, humility and devotion to learning. He lived a simple and ascetic lifestyle, often avoiding luxury. He was a Sunni Muslim, most likely following the Hanafi sect (maslak), but his fame rests more on his role as a philosopher than as a jurist or theologian. An ascetic lifestyle means living very simply and giving up comfort, luxury, or pleasure in order to focus on spiritual or religious goals.

In which caliphate:

He lived during the Abbasid Caliphate, mainly under the rule of Caliphs al-Muqtadir and al-Rāḍī. This was a time when philosophy and science were flourishing in Baghdad.

His teacher; education & influences:

He studied in Baghdad under Christian scholars such as Yūḥannā ibn Ḥaylān, who taught him logic and philosophy. He was also deeply influenced by Aristotle and Plato, whose works he studied and commented on. Al-Kindī and earlier Muslim philosophers also influenced him.

Career & historical context:

Al-Fārābī worked in Baghdad and later in Aleppo under the patronage of Sayf al-Dawla, the Hamdanid ruler. He became famous as a teacher, philosopher, and musician. His career took place during a time when Greek philosophy was being translated and debated in the Islamic world.

Major work/books:

Some of his most important works include:

(1) *Al-Madīnah al-Fāḍilah* (The Virtuous City), his famous book on political philosophy. It was inspired by Plato's *Republic* and described the ideal society, led by a wise philosopher-king who guides people toward justice and happiness.

(2) His *Commentaries on Aristotle's logic and philosophy*, where he explained and clarified difficult Greek ideas in a way that made them easier to understand for Arabic-speaking scholars. These works helped preserve and spread Greek philosophy in the Islamic world.

(3) *Kitāb al-Mūsīqī al-Kabīr* (The Great Book of Music), a major book on music theory. In it, al-Fārābī explained the mathematical basis of musical scales, the effects of music on the soul, and the role of music in society. Apart from these, he also wrote books on ethics, metaphysics, psychology, and science, making him one of the most wide-ranging thinkers of the Islamic Golden Age.

Contribution in modern science:

Al-Fārābī helped shape Islamic philosophy and political thought. His works influenced later Muslim philosophers such as Avicenna (Ibn Sīnā) and Averroes (Ibn Rushd), as well as medieval European thinkers. His study of music connected art with science, and his logical works influenced the development of rational thought.

Technic & thoughts:

He combined Greek philosophy with Islamic teachings, creating harmony between reason and faith. He believed in the idea of a 'virtuous city,' where a philosopher-king should rule for the benefit of society. He emphasized reason, ethics, and harmony in both politics and life.

Death & legacy:

He died in 950 AD in Damascus. Despite living a modest life, his intellectual contributions were immense. He left a legacy as one of the greatest philosophers of Islam, earning the title 'Second Teacher' after Aristotle.

Critical/critics perspectives:

Some religious scholars criticized him for focusing too much on Greek philosophy. Others accused him of mixing philosophy with religion. However, his defenders praised him for his efforts to combine reason and faith. His works remained influential for centuries.

Conclusion:

Al-Fārābī was a Sunni Muslim philosopher, most likely Hanafi, who dedicated his life to learning and teaching. His works in philosophy, politics, logic, and music made him one of the most important thinkers of the Abbasid Golden Age, and his influence reached both the Islamic and European worlds.

12. Al-Masūdī & Banu Musa-3 brothers.

Al-Masudi.

Introduction:

Al-Masūdī (896–956 AD) was a famous Arab historian, geographer and traveler of the Islamic Golden Age. He is often called the 'Herodotus of the Arabs' because of his detailed writings on history, geography, and cultures.

Full name, parent name:

His full name was Abū al-Ḥasan Alī ibn al-Ḥusayn ibn Alī al-Mas‘ūdī. His family traced its lineage back to Abdullāh ibn Masūd, a companion of the Prophet Muḥammad ﷺ. His father's name was al-Ḥusayn ibn Alī.

Early life & background:

He was born around 896 AD in Baghdad. From a young age, he showed interest in travel, geography, and history. He traveled widely across the Middle East, India, East Africa, and even as far as China, collecting knowledge and stories from different lands.

Personality:

Al-Masūdī was curious, open-minded, and adventurous. He combined the spirit of a historian with that of a traveler. He was a Sunni Muslim but which sunni is not clear, as he was in Abbasid time so maybe he was hanafi. His works show respect for Islamic teachings, but also a willingness to learn from many cultures and religions.

In which caliphate:

He lived during the Abbasid Caliphate, at a time when the empire was large but also facing political challenges and regional divisions.

His teacher; education & influences:

He was educated in Baghdad, where he studied history, literature, and religion. He was influenced by earlier Muslim historians such as Abū Jafar Muḥammad ibn Jarīr ibn Yazīd ibn Kathīr al-Ṭabarī (please refer lesson no.9 to read about him), as well as by Greek, Indian, and Persian traditions. His travels provided him with firsthand knowledge, which shaped his writings.

Career & historical context:

Al-Masūdī spent much of his life traveling, writing, and gathering information. He combined history with geography, ethnography, and science. His career reflects the curiosity of Abbasid scholars and the connections between the Islamic world and other civilizations. (Ethnography is the study of people, cultures, traditions, customs, daily habits, religion, food, dress, language, and social rules and their way of life).

Major work/books:

Al-Masūdī's most famous books are:

1. *Murūj al-Dhahab wa Ma'ādin al-Jawhar* (Meadows of Gold and Mines of Gems):

It is a universal history book that begins with the creation of the world and continues up to his own lifetime. In this work, he does not just record political events, but also includes geography, natural sciences, cultures, religions and stories from the many places he visited. This made the book more than just a history—it became like an encyclopedia of knowledge about the medieval world.

2. *Kitāb al-Tanbīh wa al-Ishrāf* (The Book of Admonition and Revision):

Kitāb al-Tanbīh wa al-Ishrāf (The Book of Admonition and Revision) is one of al-Masūdī's later works, written near the end of his life. It is a shorter and more refined version of his historical and geographical knowledge, serving almost like a summary of his larger writings. In this book, he corrected and revised earlier information, showing his careful approach as a historian. It covers world history, dynasties, religions, geography, and cultures, but in a more concise way compared to *Murūj al-Dhahab*. Because it was written at the end of his career, it reflects his maturity, experience, and critical thinking, making it an important guide to how he saw the world and history as a whole.

In both works, al-Masūdī combined careful observation with information gathered from earlier sources and his own travels. What makes his writings unique is the way he mixed history with geography, science, and ethnography, giving readers a wide picture of how people lived and how the world looked in his time.

Contribution in modern science:

Al-Masūdī contributed to geography by giving detailed accounts of lands, climates, and peoples. He also recorded information about natural sciences, such as geology and biology, alongside historical events. His works helped preserve knowledge about many ancient civilizations.

Technic & thoughts:

His method was to combine travel observations with historical sources. Unlike some earlier historians, he tried to verify information by personal experience. He also included stories, cultures, and sciences, making his books encyclopedic.

Death & legacy:

He died in 956 AD in Cairo (Egypt). His works were widely read and respected in both, the Islamic world and later in Europe. He left a legacy as one of the most original and wide-ranging historians of Islam.

Critical/critics perspectives:

Some critics argued that al-Masūdī included too many stories and legends in his works, which made them less reliable. However, others praised his creativity and broad knowledge. Modern scholars value him as both a historian and ethnographer.

Conclusion:

Al-Masūdī was a Sunni Muslim scholar, historian, and traveler. His adventurous spirit and encyclopedic works make him one of the most remarkable figures of the Abbasid Golden Age, remembered as the 'Herodotus of the Arabs.'

Banu Musa-3 Brothers.

Introduction:

The Banū Mūsā Brothers were three famous scholars and inventors of the 9th AD. They played a major role in mathematics, astronomy, and engineering during the Islamic Golden Age. They were among the earliest mechanical engineers in history.

Full name, parent name:

The three brothers were Muḥammad ibn Mūsā, Aḥmad ibn Mūsā, and al-Ḥasan ibn Mūsā. Their father was Mūsā ibn Shākir, who had been an astrologer and supporter of the Abbasid Caliphs. After his death, the young brothers were cared for by the Caliph al-Mamūn.

Early life & background:

The brothers were born in Baghdad in the 9th century. Their father's connections allowed them to receive good education and support from the Abbasid court. They grew up during the peak of the House of Wisdom, where scientific translation and innovation flourished.

Personality:

The Banū Mūsā Brothers were known for their teamwork, creativity, and curiosity. They were Muslims living under the Abbasids, most likely Sunni and probably Hanafi, as was common in Baghdad. Their personalities reflected cooperation and a strong passion for science and invention.

In which caliphate:

They lived during the Abbasid Caliphate, mainly under Caliph al-Mamūn and later Caliphs al-Mutaṣim and al-Wāthiq, who strongly supported science and technology.

His teacher; education & influences:

They studied under the guidance of scholars in the House of Wisdom, where they had access to Greek, Indian, and Persian scientific texts. They were influenced by earlier mathematicians like Euclid and Archimedes, and they extended their ideas in practical ways.

Career & historical context:

The brothers became leading scholars in Baghdad. They contributed to astronomy by improving astronomical tables, and in mathematics they advanced geometry and number theory. They also became famous for their work in mechanics and engineering, building devices that amazed their contemporaries.

Major work/books:

The most famous book of the Banū Mūsā Brothers is *Kitāb al-Ḥiyal* (The Book of Ingenious Devices). It describes about 100 mechanical inventions and machines, many of which were automatic or self-operating. The book explains designs for water fountains, lamps, trick vessels, automatic flutes, and even early forms of programmable machines. What makes the book important is that it combined theory with practical instructions, showing how these devices could be built and used. This work made the Banū Mūsā among the first pioneers of mechanical engineering and robotics in history, and their book influenced later Muslim engineers like al-Jazarī, as well as European inventors during the Renaissance.

They also wrote on mathematics, astronomy, and measurement, such as the distance between stars and methods of land surveying. Following are other books written by them:

Book on the Measurement of Plane and Spherical Figures – A mathematical treatise dealing with geometry, areas, and volumes, which influenced later mathematicians.

Astronomical Tables (Zīj al-Banū Mūsā) – A work on astronomy that improved earlier Greek and Indian tables by giving more accurate calculations of planetary motions and star positions.

Book on the Division of Figures – A mathematical text focusing on how to divide geometrical figures into equal parts, useful in land surveying and geometry.

Book on the Motion of Celestial Spheres – A study of astronomy that explored the structure and movement of the heavens.

Contribution in modern science:

The Banū Mūsā Brothers were pioneers of mechanical engineering and robotics. Their devices are considered early forms of automation. Their works influenced later Islamic inventors like al-Jazarī and even inspired mechanical engineering in Europe.

Technic & thoughts:

They combined theory with practical design. Their approach was hands-on, building real devices to test ideas. They believed science should be useful for society and daily life, not just theory.

Death & legacy:

The three brothers died in the mid of 9th AD. Their legacy continued through their books and inventions, which spread widely. They are remembered as early pioneers of automation and mechanical engineering in history.

Critical/critics perspectives:

Some critics say that they collected ideas from earlier Greek sources without much originality. However, most historians argue that their practical applications and inventions were groundbreaking for their time.

Conclusion:

The Banū Mūsā Brothers were Sunni Muslim scholars of the Abbasid Caliphate, remembered for their creativity and inventions. Their works in mathematics, astronomy, and mechanics make them some of the most important scientists of the Islamic Golden Age.

13. Al-Zahrāwī & Ibn Yunus.

Al-Zahrāwī.

Introduction:

Al-Zahrāwī (936–1013 AD), known in the West as Albucasis, was one of the greatest surgeons and physicians of the Islamic Golden Age. He is often called the 'Father of Modern Surgery' because of his groundbreaking work in surgical techniques and medical instruments.

Full name, parent name:

His full name was Abū al-Qāsim Khalaf ibn al-Abbās al-Zahrāwī. His father's name was al-Abbās. His nisbah 'al-Zahrāwī' comes from his birthplace.

Early life & background:

He was born in 963 AD, in al-Zahrā, a suburb of Córdoba, in Islamic Spain (al-Andalus), the cultural capital of Muslim Spain. Not much is known about his early life, but he studied medicine in Córdoba, which at that time was a great center of learning and science.

Personality:

He was known for his dedication, precision, and compassion as a physician. He stressed the importance of patient care and medical ethics. He was a Sunni Muslim, most likely following the Maliki sect (maslak), which was dominant in Andalusia.

In which caliphate:

He lived under the Umayyad Caliphate of Córdoba, which was a period of great scientific and cultural development in al-Andalus.

His teacher; education & influences:

Details of his teachers are not clearly known, but he was influenced by earlier Greek and Islamic medical traditions, especially the works of Hippocrates, Galen, and al-Rāzī. His own observations and surgical practice, however, made him unique.

Career & historical context:

Al-Zahrāwī practiced medicine and surgery in Córdoba, where he became famous as a court physician and teacher. His career took place during the golden age of Muslim Spain, when Córdoba was one of the most advanced cities in the world, with great hospitals and libraries.

Major work/books:

Al-Zahrāwī's most important book is *Kitāb al-Taṣrīf li-man 'ajiza an al-Ta'līf* (The Method of Medicine). It is a 30-volume medical encyclopedia that covers all branches of medicine, including pharmacy, surgery, obstetrics, and dentistry. The final volume is the most famous because it deals with surgery in great detail. In this part, al-Zahrāwī described over 200 surgical instruments, many of which he invented, and illustrated how they should be used. He explained surgical operations such as cauterization, removal of bladder stones, setting broken bones, treating wounds, and using catgut for internal stitches. The book was translated into Latin in the 12th century and became the main reference on surgery in Europe for more than 500 years. It influenced many great European doctors, including Guy de Chauliac and Ambroise Paré. It was the result of Al-Zahrāwī's entire life's medical experience, collected over about 50 years (means it took 50 years to complete the book) in other words, it is a collection of 50 years experience, noted in the book as he used to treat.

Besides *Kitāb al-Taṣrīf*, al-Zahrāwī also wrote on other areas of medicine, including works on midwifery, dentistry, and pharmacology. Some of his writings dealt with preparing medicines, using plants and minerals in treatments, and methods of pain relief. He also wrote about fractures, dislocations, and methods to stop bleeding. Unfortunately, many of his other writings are lost or survive only in fragments, but *Kitāb al-Taṣrīf* alone is enough to prove his lasting importance in medical history.

Contribution in modern science:

Al-Zahrāwī introduced new surgical techniques such as the use of catgut for internal stitches, techniques for removing bladder stones, and methods for treating fractures and dislocations. He also designed and illustrated surgical instruments that are still recognizable today. His emphasis on surgery as a separate field of medicine helped establish modern surgical science.

Technic & thoughts:

He believed that medicine should combine theory with practice. He stressed the importance of observation, experimentation, and hands-on experience. He also insisted that physicians must act ethically and care for their patients with compassion.

Death & legacy:

Al-Zahrāwī died around 1013 AD in Córdoba. His legacy lived on through his writings, which shaped both Islamic and European medicine. Today, he is remembered as one of the greatest surgeons in history.

Critical/critics perspectives:

Some critics said that his work was too focused on surgery compared to general medicine. However, most historians and doctors recognize him as the pioneer who gave surgery a respected place in medical science.

Conclusion:

Al-Zahrāwī was a Sunni Muslim, most likely Maliki, whose contributions to surgery and medicine influenced both the Islamic world and Europe for centuries. His book *Kitāb al-Taṣrīf* remains one of the most important medical works of the medieval period, earning him the title 'Father of Modern Surgery.'

Ibn Yunus al-Misri.

Introduction:

Ibn Yūnus al-Miṣrī (950–1009 AD) was a famous Egyptian astronomer and mathematician of the Islamic Golden Age. He is best remembered for his highly accurate astronomical observations and his influential work in trigonometry.

Full name, parent name:

His full name was Abū al-Ḥasan Alī ibn Abdul-Raḥmān ibn Yūnus al-Ṣadafī al-Miṣrī. His father was Abdul-Raḥmān ibn Yūnus, a respected scholar and companion of the Fatimid rulers.

Early life & background:

He was born around 950 AD in Fustat (old Cairo, Egypt). Growing up in a scholarly family, he was exposed to knowledge and scientific traditions from an early age. Egypt at that time was an important center of learning under the Fatimid Caliphate.

Personality:

Ibn Yūnus was known for his precision, patience, and love of mathematics and astronomy. His works show a personality devoted to careful observation and accuracy. He was a Sunni Muslim, most likely of the Shafī sect (maslak), which was common in Egypt, though he served under the Shia Fatimids.

In which caliphate:

He lived during the Fatimid Caliphate, serving under Caliph al-Azīz and Caliph al-Ḥākim bi-Amrullāh. The Fatimids supported science, and Ibn Yūnus became one of their leading astronomers.

His teacher; education & influences:

Details of his teachers are not well known, but he was influenced by earlier astronomers like Ptolemy and Islamic scholars such as al-Battānī. He studied mathematics, astronomy, and astrology in Egypt's rich scholarly environment.

Career & historical context:

Ibn Yūnus worked in Cairo as the chief astronomer of the Fatimid caliphate. He carried out astronomical observations at the al-Muqattam hills near Cairo. His career reflects the Fatimid caliphate support for science and the blending of Greek, Indian, and Islamic traditions in astronomy.

Major work/books:

The most famous work of Ibn Yūnus is *al-Zīj al-Ḥākimī al-Kabīr* (The Hakimite Tables), which he dedicated to the Fatimid Caliph al-Ḥākim bi-Amrullāh. This book is one of the most important astronomical works of the Islamic Golden Age. It contained thousands of highly accurate observations of the sun, moon, planets, and stars, many of which were made from Cairo using improved instruments. Ibn Yūnus carefully recorded solar and lunar eclipses, planetary conjunctions, and the length of the solar year. He also introduced new methods in trigonometry, including formulas for spherical triangles, which were vital for astronomy and geography. His precise data later influenced European astronomers such as Tycho Brahe and Johannes Kepler, who used it for their own calculations. *Al-Zīj al-Ḥākimī al-Kabīr* not only advanced Islamic astronomy but also served as a bridge to Renaissance science in Europe.

Contribution in modern science:

Ibn Yūnus's precise observations were later used by European astronomers like Tycho Brahe and Johannes Kepler. His trigonometric methods influenced both Islamic and European mathematics. His works helped refine calendars, timekeeping, and astrology in the medieval world.

Technic & thoughts:

He emphasized careful observation and mathematical precision. His approach combined inherited Greek astronomy with improved Islamic methods, making his works highly reliable. He believed in testing and verifying data instead of blindly copying earlier sources.

Death & legacy:

Ibn Yūnus died in 1009 AD in Cairo, Egypt. His legacy lived on through his astronomical tables and mathematical innovations, which influenced both Islamic and European science for centuries.

Critical/critics perspectives:

Some critics argued that he included astrological material alongside astronomy, which mixed science with superstition. However, historians value him for his unmatched accuracy in observation and his important role in developing trigonometry.

Conclusion:

Ibn Yūnus al-Miṣrī was a Sunni Muslim scholar, likely Shafi'i, who worked under the Shia Fatimid Caliphate. His pioneering observations and mathematical contributions make him one of the greatest astronomers of the Islamic Golden Age.

14. Ibn Al-Haytham & Al-Biruni

Ibn Al-Haytham

Introduction:

Ibn al-Haytham (965–1040 AD), known in the West as Alhazen, was a brilliant scientist, mathematician and philosopher of the Islamic Golden Age. He is often called the 'Father of Optics' for his groundbreaking work on vision, light, and scientific method.

Full name, parent name & full detail:

His full name was Abū Alī al-Ḥasan ibn al-Ḥasan ibn al-Haytham. His father's name was al-Ḥasan, and he came from a middle-class family.

Early life & background:

He was born in 965 AD in Basra (Iraq) and grew up during the Abbasid Caliphate. From an early age, he showed a strong interest in science, mathematics, and philosophy. He studied in Basra and later moved to Cairo (Egypt), where he spent much of his life.

Personality:

Ibn al-Haytham was known for his curiosity, patience and dedication to truth. He lived simply and valued knowledge above wealth. He was a Sunni Muslim, most likely following the Shafi'i sect (maslak), though he is remembered more as a scientist than as a jurist. His works show a balance between faith and reason.

In which caliphate:

He lived during the Abbasid Caliphate and later under the Fatimid Caliphate in Egypt. The Fatimid ruler al-Hakim bi-Amr Allah invited him to Egypt to work on engineering projects.

His teacher; education & influences:

The names of his direct teachers are not well known, but he was influenced by Greek thinkers such as Aristotle, Euclid and Ptolemy, as well as earlier Muslim scholars like al-Kindi and al-Razi. He combined their ideas with his own experiments and observations.

Career & historical context:

Ibn al-Haytham first worked in Basra and then moved to Cairo, where he planned to regulate the flooding of the Nile. When the project failed, he turned fully to science and writing. He lived during a time of political change but found refuge in scholarship, writing many books on optics, mathematics, astronomy, and philosophy.

Major work/books:

His most famous book is *Kitāb al-Manāẓir* (The Book of Optics), in which he explained in detail how vision works, proving that light enters the eyes rather than being emitted from them, as earlier Greek thinkers like Ptolemy and Galen had believed. This discovery completely changed the study of optics and laid the foundation for modern vision science. The book also explored reflection, refraction, and how lenses work, which later influenced the invention of eyeglasses, cameras, and

telescopes. His writings were translated into Latin in the Middle Ages and had a major influence on European scientists such as Roger Bacon, Kepler, and even indirectly Newton.

Apart from optics, Ibn al-Haytham also wrote works on astronomy, geometry, number theory, and engineering. His book *Doubts Concerning Ptolemy* challenged the accepted Ptolemaic model of the universe and encouraged later scientists to rethink astronomy. During his life, he was at times imprisoned, especially in Egypt under the Fatimid Caliph al-Hakim, when one of his engineering projects failed. However, this period of confinement allowed him to focus on writing many of his scientific works.

Around **1011 AD**, Ibn al-Haytham was invited by the **Fatimid Caliph al-Ḥākim bi-Amr Allāh** in Egypt. The Caliph wanted him to **design a system to regulate the flooding of the Nile** (a kind of dam or irrigation system). After studying the Nile, Ibn al-Haytham realized that such a project was **not practical with the technology of that time**. Al-Ḥākim was known to be unpredictable and harsh, so fearing punishment for “failing,” Ibn al-Haytham pretended to be **mentally ill**. **As a result, he was placed under house arrest (a kind of imprisonment) in Cairo until al-Ḥākim died in 1021 AD.**

During this period of confinement (jailed), Ibn al-Haytham **had time to focus on his scientific studies**. He carried out experiments on **light, vision, and optics**, and began writing what became his most famous work, *Kitāb al-Manāẓir* (**The Book of Optics**). In fact, many historians believe that his time under house arrest **helped him concentrate on research**, leading to his revolutionary contributions to science.

Contribution in modern science:

Ibn al-Haytham introduced the scientific method of observation, experimentation, and testing hypotheses. He laid the foundations of modern optics, explained refraction and reflection, and studied the anatomy of the eye. His ideas directly influenced the European Renaissance and the development of modern science.

Technic & thoughts:

He believed that knowledge must come from careful observation and proof, not just authority. He combined philosophy with experiment, showing that science and faith can work together. His method of scientific inquiry became a model for later scientists.

Death & legacy:

He died around 1040 AD in Cairo (Egypt). His all work continued to be studied for centuries in both the Islamic world and Europe. Today, he is remembered as one of the greatest scientists in history, especially in optics and the scientific method.

Critical/critics perspectives:

Some critics in his time doubted his challenges to Ptolemy and Aristotle, but later scholars recognized his genius. While he did not always have the technology to prove his ideas fully but his approach to experimentation was revolutionary.

Conclusion:

Ibn al-Haytham was a Sunni Muslim scholar, likely Shafi'i, whose devotion to truth and scientific method made him a pioneer of modern science. His works in optics, mathematics, and astronomy left a lasting mark on both Islamic and European scientific traditions. Ibn al-Haytham was jailed (house arrest) around 1011–1021 AD because of a failed Nile project under Caliph al-Ḥākim. It was during this confinement (jailed) that he wrote and experimented on optics and the eye, which later earned him the title “Father of Optics.”

Al-Biruni

Introduction:

Abū Rayḥān al-Bīrūnī (973–after 1050 AD) was one of the greatest scholars of the Islamic Golden Age. He was a mathematician, astronomer, historian, geographer, and philosopher, often compared

to Leonardo da Vinci for his wide knowledge. He is remembered as a pioneer of comparative religion and natural sciences.

Full name, parent name & full detail:

His full name was Abū Rayḥān Muḥammad ibn Aḥmad al-Bīrūnī. His father's name was Aḥmad. His nisbah 'al-Bīrūnī' means 'from the outskirts,' referring to where his family lived.

Early life & background:

Al-Bīrūnī was born in 973 AD into a Persian family in Khwarazm (Uzbekistan). He showed a love for learning at a young age, studying astronomy, mathematics and languages. His homeland was a center of culture and scholarship, which gave him access to great teachers and libraries.

Personality:

Al-Bīrūnī was curious, analytical, and open-minded. He respected all cultures and religions, studying them with fairness. He was a Sunni Muslim, most likely Hanafi, since that was the common sect (maslak) in Central Asia. His works show his tolerance, honesty, and dedication to truth.

In which caliphate:

He lived during the Ghaznavid dynasty, which ruled parts of Central Asia, Persia, and India. He served at the court of Sultan Maḥmūd of Ghazni and traveled widely in India.

His teacher; education & influences:

He was taught by local scholars in Khwarazm, especially in mathematics and astronomy. He was influenced by Greek thinkers like Aristotle and Ptolemy, as well as earlier Muslim scientists such as al-Khwarizmi. His later stay in India gave him deep knowledge of Hindu philosophy and science.

Career & historical context:

Al-Bīrūnī worked as a court scholar, scientist, and advisor. He traveled to India with Sultan Maḥmūd's campaigns but used the opportunity to learn Indian languages and study Indian culture, science, and religion. He lived during a time when Islamic science was at its peak, blending knowledge from many civilizations.

Major work/books:

Al-Bīrūnī was a very productive scholar who wrote more than 150 books on different subjects.

His most famous work is *Kitāb al-Hind* (The Book of India), in which he gave a detailed and fair study of Indian religion, philosophy, science, culture, and traditions.

Another major work is *al-Qānūn al-Masūdī* (The Masūdī Canon), a large encyclopedia of astronomy that included his accurate calculations of planetary movements, eclipses, and the Earth's radius.

He also wrote *Kitāb al-Jamāhir fī Ma'rifat al-Jawāhir* (The Book of Precious Stones), a scientific study of minerals, gems, and metals, explaining their properties and uses. Besides these, he produced books on mathematics, geography, medicine, and history, making him one of the most wide-ranging and knowledgeable scholars of the Islamic Golden Age.

Contribution in modern science:

Al-Bīrūnī calculated the Earth's radius with amazing accuracy, studied the rotation of the Earth, and contributed to the understanding of geography. He also developed methods in trigonometry, studied the nature of time, and introduced scientific comparisons of different cultures and religions.

Technic & thoughts:

His method was based on observation, measurement, and fairness. He believed that knowledge should be universal and free of prejudice. His comparative approach in religion and culture made him one of the earliest anthropologists in history.

Death & legacy:

Al-Bīrūnī died sometime after 1050 AD in Ghazni (Afghanistan). His works were studied in both the Islamic world and Europe for centuries. He left a legacy as one of the most original and wide-ranging scholars of the medieval world.

Critical/critics perspectives:

Some critics said that he relied too much on Greek science, but his ability to test and improve earlier knowledge made him unique. Others saw him as too neutral when writing about religions, but modern scholars value his objectivity.

Conclusion:

Al-Bīrūnī was a Sunni Muslim scholar, most likely Hanafi, whose vast knowledge in science, history and religion made him one of the greatest minds of the Islamic Golden Age. His works influenced not only the Islamic world but also later European science and culture.

15. Ibn Sina & Ibn Wahshiyya.

Ibn Sina.

Introduction

Ibn Sīnā (980–1037 AD), known in the West as Avicenna, was one of the greatest philosophers, physicians and scientist of the Islamic Golden Age. He is remembered as the 'Prince of Physicians' because of his lasting contributions to medicine and philosophy.

Full name, parent name & full detail:

His full name was Abū Alī al-Ḥusayn ibn Abdullāh ibn Sīnā. His father's name was Abdullāh, a respected local official who provided him with a good education.

Early life & background:

Ibn Sīnā was born in 980 AD in Afshana near Bukhara (Uzbekistan). He showed remarkable intelligence from a young age. By the age of 10, he had memorized the Quran and was studying logic, philosophy, and natural sciences. By 16, he was practicing medical and by 18, he was already famous as a skilled physician.

Personality:

Ibn Sīnā was curious, confident and highly ambitious. He lived a busy life as both a physician and scholar, but also faced political struggles. He was a Sunni Muslim, most likely following the Hanafi sect (maslak), though some Shia traditions also claim him. He is remembered more for his scientific and philosophical genius than for strict religious affiliation.

In which caliphate:

He lived during the time of the Samanid dynasty in Central Asia and later served under the Buyid dynasty in Persia, both of which were within the larger Abbasid cultural sphere.

His teacher; education & influences:

Ibn Sīnā studied under several local scholars. His most influential teacher was al-Nātilī, who taught him logic and philosophy. He was influenced by Greek philosophers like Aristotle and Galen, as well as earlier Muslim scholars such as al-Fārābī. His vast self-study also shaped his knowledge.

Career & historical context:

Ibn Sīnā worked as a physician, philosopher, and advisor to rulers. He treated patients, wrote books, and served in royal courts. His life was marked by travel and sometimes imprisonment due to political rivalries. Despite this, he wrote hundreds of works on medicine, philosophy, astronomy, and mathematics.

Major work/books:

Ibn Sīnā's most famous medical book is *al-Qānūn fī al-Ṭibb* (The Canon of Medicine), a five-volume encyclopedia that brought together Greek, Persian, Indian, and Islamic medical knowledge. It explained diseases, treatments, anatomy and the use of medicines in a very systematic way. This book became the standard reference book for doctors in both the Islamic world and Europe and it was taught in European universities until the 17th century.

Another important work is *Kitāb al-Shifā* (The Book of Healing), though the name of the book sounds like a medical book, but was a huge encyclopedia not about medicine but about philosophy, logic, mathematics, physics, and natural sciences. It showed Ibn Sīnā's deep knowledge in many subjects beyond medicine.

In addition to these, he wrote books on psychology, explaining how the mind and body are connected, also worked on astronomy about the movement of planets, texts on chemistry and alchemy, and even studies on music. Altogether, he wrote more than 200 books and treatises, making him one of the most productive and influential scholars of the Islamic Golden Age.

Ibn Sina jailed:

Ibn Sīnā lived in a politically unstable time, moving between courts of different caliphs. He served as a court physician and vizier (advisor/minister) to several dynasties. His political involvement created jealousy and rivalry, especially among other officials, because of this, he was accused of plotting against caliph or favoring their enemies. As a result, he was jailed for a short period due to political conflicts, not because of his scientific or religious views. He was imprisoned around 1020s AD in Hamadan, Persia, under the Buyid dynasty. This happened when a new ruler came to power and distrusted him. Later, when conditions changed, Ibn Sīnā was released and returned to scholarly and medical work.

Contribution in modern science:

Ibn Sīnā made major contributions to medicine, introducing ideas about contagious diseases, testing medicines and describing anatomy in detail. His book *Al-kanoon fi-tibb* systematized medical knowledge and was taught in European universities until the 17th century. His works also influenced the development of modern philosophy and science.

Technic & thoughts:

He combined philosophy with science, believing that reason and observation were keys to understanding truth. He followed a rational method, drawing on Aristotle but also correcting him. His works shaped Islamic philosophy and were central to later European Scholasticism.

Death & legacy:

Ibn Sīnā died in 1037 AD in Hamadan, Persia, at the age of 57. Despite his relatively short life, his works continued to influence medicine and philosophy for centuries. He remains one of the most important figures of Islamic and world intellectual history.

Critical/critics perspectives:

Some critics in his time opposed his use of Greek philosophy, while some Islamic scholars accused him of mixing philosophy with theology. Imam Ghazālī also corrected his ideas & views, saying that Ibn Sina had made little mistakes in understanding Islam, due to this nearness to Greek philosophy. However, many admired his genius and saw him as a pioneer who advanced both medicine and philosophy.

Conclusion:

Ibn Sīnā was a Sunni Muslim, most likely Hanafi, whose brilliance in medicine and philosophy made him one of the greatest thinkers of all time. His books are monumental works that shaped the course of science and philosophy in both the Islamic world and Europe. Ibn Sīnā was jailed in Hamadan during the 1020s AD for political reasons, but after his release he continued to write and practice medicine until his death in 1037 AD.

Ibn Wahshiyya.

Introduction:

Ibn Wahshiyya (9th–10th century AD) was an important Arab scholar, translator, and writer of the Islamic Golden Age. He is best known for his works on agriculture, alchemy, magic and the decipherment of ancient scripts. His writings preserved knowledge from ancient Mesopotamia and Egypt. (Decipherment means figuring out how to read and understand a language or writing system that has been lost or forgotten.)

Full name, parent name & full detail:

His full name was Abū Bakr Aḥmad ibn Alī ibn Qays al-Kasdānī, but he is more commonly known as Ibn Wahshiyya. His father's name was Alī ibn Qays. He was from Iraq, and his nisbah 'al-Kasdānī' shows his connection to Chaldean or Nabataean heritage.

Early life & background:

Ibn Wahshiyya was born in Iraq during the Abbasid Caliphate, probably in the 9th century. His background gave him access to both Arabic and ancient Mesopotamian traditions. He was interested in agriculture, chemistry, astrology and the ancient knowledge of the Nabataeans.

Personality:

He was curious, creative and open to studying different traditions. He was fascinated by ancient sciences and sought to preserve them in Arabic. He is generally identified as a Muslim, though some sources debate whether he leaned Sunni or Shia. Most likely, he was a Shia Muslim with strong interest in Nabataean traditions. *Nabataean traditions* means the old knowledge and practices of the Nabataeans, especially about agriculture, plants, magic, and ancient sciences, which Ibn Wahshiyya preserved in books like *Kitāb al-Filāḥa al-Nabaṭiyya* (The Nabataean Agriculture).

In which caliphate:

He lived under the Abbasid Caliphate, a time when translation and preservation of knowledge from Greek, Persian and Mesopotamian sources were highly valued. Mesopotamian sources were highly valued, means that the old writings, knowledge, and traditions from Mesopotamia (the land between the Tigris and Euphrates rivers, today's Iraq and nearby areas) were considered very important and useful. Scholars respected them and used them in their own studies.

His teacher; education & influences:

Little is known about his specific teachers, but he was influenced by Nabataean, Mesopotamian and Greek knowledge. He studied astrology, agriculture, and alchemy through earlier texts and translations, which he adapted into Arabic.

Career & historical context:

Ibn Wahshiyya worked as a scholar, translator and author in Iraq. He translated many ancient works into Arabic, including texts on agriculture, botany, and magic. His career reflects the Abbasid interest in gathering knowledge from all cultures.

Major work/books:

His most famous work is 'Kitāb al-Filāḥa al-Nabaṭiyya' (The Nabataean Agriculture), a large book on agriculture that also preserved ancient Mesopotamian traditions.

He also wrote *Shawq al-Mustahām* (The Book of the Longing of the Curious), in which he tried to read and understand Egyptian hieroglyphs, many centuries before the European scholar Champollion succeeded.

Besides this, he wrote other works on subjects like alchemy, astrology, and toxicology, where he studied chemicals, the stars, and poisons with their cures.

Contribution in modern science:

Ibn Wahshiyya saved old knowledge about farming, plants, and how to care for soil, and this helped both Islamic and European agriculture in later times. He also tried to understand Egyptian hieroglyphs, which is seen as one of the first efforts to read ancient languages. In addition, his writings on poisons and their cures were useful for medicine and the study of toxicology.

Egyptian hieroglyph was the picture-writing system used by the ancient Egyptians. Instead of using letters like in English, they used pictures and symbols to represent sounds, words, or ideas. For example, a picture of a bird could mean the sound of that bird's name or sometimes it stood for the actual bird.

Technic & thoughts:

He combined translation with commentary, adding his own thoughts to ancient works. His method was both preservative and creative, trying to blend older knowledge with Islamic science.

Death & legacy:

He is believed to have died in the early 10th century. His works remained influential in agriculture and occult sciences. His attempt at reading hieroglyphs was recognized much later by modern scholars as an important historical effort.

Critical/critics perspectives:

Some critics in his time dismissed his works on magic and astrology as unscientific. Others valued him for preserving Nabataean and Mesopotamian traditions that would otherwise have been lost. Modern historians see him as a bridge between ancient and medieval science.

Conclusion:

Ibn Wahshiyya was a Muslim scholar, likely Shia with Nabataean cultural roots, who preserved and translated ancient sciences into Arabic. His books on agriculture, alchemy, and scripts make him a unique figure of the Abbasid Golden Age, remembered for saving valuable knowledge from the past.

16. Al-Bakrī & Imam Ghazālī.

Al-Bakrī.

Introduction:

Abū Ubayd Abdullāh al-Bakrī (1014–1094 AD) was a famous Muslim geographer, historian and poet from al-Andalus (Spain). He is best known for his detailed writings on geography and culture, which preserved valuable knowledge about different lands and peoples.

Full name, parent name & full detail:

His full name was Abū Ubayd Abdullāh ibn Abdul Azīz ibn Muḥammad ibn Ayyūb al-Bakrī. His father was Abdul Azīz, a governor and wealthy man who gave him the opportunity for good education and learning.

Early life & background:

Al-Bakrī was born in 1014 AD in Huelva al-Andalus (modern Spain). He grew up in Córdoba, which was then a great center of learning in al-Andalus. He was born into a noble Arab family. He belonged to the Bakr tribe, a well-known Arab tribe. Though he never traveled far outside Spain, he collected vast information from travelers, merchants, and earlier books.

Personality:

Al-Bakrī was intelligent, curious, and a passionate lover of knowledge. He was respected as a scholar and poet. He is believed to have been a Sunni Muslim, most likely of the Maliki sect (maslak), which was dominant in al-Andalus (Spain).

In which caliphate:

He lived during the Taifa (smaller Kingdoms) period of al-Andalus (Spain), after the fall of the Córdoba Caliphate (Qurṭubah قرطبة khilaafat). This was a time when smaller Muslim kingdoms ruled Spain, but knowledge and culture were still flourishing.

The Córdoba Caliphate (Qurṭubah قرطبة khilaafat) is explained in lesson no 1 under the subtitle of Umayyad caliphate please read it.

His teacher; education & influences:

Al-Bakrī studied in Córdoba, where he learned history, literature and geography. He was influenced by earlier Muslim geographers like al-Yaqūbī and al-Masūdī, as well as by reports from merchants and travelers coming to Spain from Africa and Asia.

Career & historical context:

Although al-Bakrī did not travel widely himself, he became one of the greatest geographers of his time. He spent his life in Córdoba, gathering information and writing books that described distant places, cultures and histories. Even though al-Andalus (Muslim Spain) was divided politically into smaller kingdoms, knowledge, learning, and culture were still strong there. Al-Bakrī's career as a scholar shows how rich and active the world of ideas and education was during that time.

Major work/books:

Al-Bakrī's most famous work is *Kitāb al-Masālik wa al-Mamālik* (The Book of Roads and Kingdoms). In this book, he described the different routes, lands, cities and peoples of Africa, Europe, and Asia. It gives details about trade routes, cultures and histories of places that were not well known in Europe at that time, especially about West Africa.

Another important work of his is *Mujam mā Istajam*, a geographical dictionary that explains the meanings and histories of place names mentioned in Arabic poetry and history. These books were very valuable because they preserved knowledge of lands, cultures, and peoples, and they became key sources for later historians, geographers, and travelers in both the Islamic world and Europe.

Contribution in modern science:

Al-Bakrī preserved knowledge about Africa, especially West Africa, which was not well known in Europe at that time. His works recorded cultures, trade routes, and histories that would otherwise have been forgotten. His methods of gathering information influenced later geographical writing in both the Islamic world and Europe.

Technic & thoughts:

His technique was to collect reports from reliable travelers, combine them with earlier books, and arrange them clearly. He valued accuracy and detail, and he mixed geography with history and culture, giving a full picture of the world as known in his time.

Death & legacy:

Al-Bakrī died in 1094 AD in Córdoba. His books survived and were widely read by Muslim and Christian scholars. He left a legacy as one of the greatest geographers of al-Andalus (Spain), preserving cultural and geographical knowledge for future generations.

Critical/critics perspectives:

Some critics note that because al-Bakrī did not travel much, he depended on second-hand reports, which sometimes contained errors. However, most scholars praise him for collecting and organizing so much valuable information, making him a key figure in medieval geography.

Conclusion:

Abū Ubayd Abdullāh al-Bakrī was a Sunni Muslim, most likely Maliki, his geographical works preserved knowledge of lands, cultures, and peoples far beyond Spain. Even though he did not travel widely, his writings had a lasting impact on both Islamic and European scholarship.

Imam Ghazālī.

Introduction:

Imam al-Ghazālī (1058–1111 AD) was one of the most influential Muslim scholars, philosophers, jurists, and Sufi mystics (Islamic Sufi) of the Islamic Golden Age. He is known as 'Hujjat al-Islam' (The Proof of Islam) for his deep knowledge of Islamic sciences and his ability to defend Islam through reason and spirituality.

Full name, parent name & full detail:

His full name was Abū Ḥāmid Muḥammad ibn Muḥammad al-Ghazālī al-Ṭūsī. He was born in 1058 AD in Ṭūs, in the Khurasan region of Persia (modern-day Iran). His father, Muhammad, was a poor man but devoted to religion, and he ensured that his son received a strong education.

Early life & background:

Imam Ghazālī grew up in a humble family. After the death of his father, he and his brother were cared for by a Sufi friend of the family. From a young age, he showed intelligence and dedication to learning, especially in law, theology, and philosophy.

Personality:

He was deeply spiritual, thoughtful, and disciplined. At times, he struggled with doubts about philosophy and faith, but this led him to embrace Sufism. He was a Sunni Muslim, following the Shafi'i sect (maslak) of law (Fiqh), and his teachings combined jurisprudence with spirituality.

In which caliphate:

He lived during the Seljuk Empire, under the broader Abbasid Caliphate, when Islamic scholarship was highly developed, and scholars debated law, theology, and philosophy.

His teacher; education & influences:

He studied under the famous scholar Imām al-Juwaynī (al-Imam al-Haramayn) in Nishapur, who taught him advanced theology, law, and philosophy. He was also influenced by Greek philosophy, Islamic theology (kalam), and Sufi spirituality.

Career & historical context:

Imam Ghazālī became a professor at the Nizamiyya Madrasa in Baghdad, one of the most prestigious centers of learning in the Muslim world. He wrote on philosophy, law, theology, and Sufism. At one point, he left his teaching position due to a spiritual crisis and spent years traveling and practicing ascetic (Islamic Sufism) Sufism before returning to teaching and writing.

Major work/books:

Imam Ghazālī wrote many important books that shaped Islamic thought for centuries. His most famous book is *Iḥyā' 'Ulūm al-Dīn* (The Revival of the Religious Sciences), which combines Islamic law, ethics, and spirituality, and became a guide for both scholars and ordinary Muslims.

Another important work is *Tahāfut al-Falāsifa* (The Incoherence of the Philosophers), where he criticized Greek-influenced philosophers and showed the limits of relying only on reason without revelation.

He also wrote *al-Munqidh min al-Ḍalāl* (Deliverance from Error), his spiritual autobiography, where he explained his personal journey from doubt to certainty and how he found peace in Sufism. In the field of Islamic law,

He wrote works such as *al-Wajīz*, *al-Basīṭ*, and *al-Wasīṭ*, which became important references for Shafi'i jurisprudence. In addition, he wrote books on logic, philosophy, theology, and Sufism that spread across the Muslim world and were translated into Latin in Europe, influencing Christian scholars. His writings were practical, deep, and spiritual, making him one of the most widely read Muslim scholars in history.

His most famous book is 'Iḥyā Ulūm al-Dīn' (The Revival of the Religious Sciences), which combines Islamic law, ethics, and spirituality.

Another important work is 'Tahāfut al-Falāsifa' (The Incoherence of the Philosophers), where he criticized Greek-influenced philosophers.

He also wrote 'al-Munqidh min al-Ḍalāl' (Deliverance from Error), his spiritual autobiography, and works on jurisprudence like 'al-Wajīz'.

Contribution in modern science:

Although he was not a scientist in the modern sense, his method of questioning philosophy and emphasizing experience and observation influenced later scientific thinking. His balance between reason and spirituality shaped Islamic thought and even European philosophy through Latin translations.

He corrected the wrong perspectives of Greek philosophy, beliefs & faith:

Imam Ghazālī strongly criticized the philosophers of his time, especially Ibn Sīnā (Avicenna) and al-Fārābī. In his famous book *Tahāfut al-Falāsifa* (The Incoherence of the Philosophers), he argued that they were too influenced by Greek philosophy, especially Aristotle and Plato, and that they mixed philosophy with religion in ways that were dangerous. He accused them of making mistakes in areas of theology, such as the nature of Allah, the creation of the world, and life after death. Imam Ghazālī pointed out that both Ibn Sīnā and al-Fārābī taught ideas that contradicted the Qur'an and Islamic belief, such as the eternity of the world (that the universe always existed) and denying bodily resurrection. He declared that some of their views were not only wrong but outside the boundaries of Islam. While he respected their intelligence and contributions in logic and science, he believed that their errors in faith matters could mislead Muslims. His criticisms became very influential, and many scholars after him were cautious about mixing Greek philosophy with Islamic teachings.

Imam Ghazālī criticized the Ismā'ili Shia (sometimes called the Bāṭiniyya, who follow Aga Khan), who believed in hidden meanings of religion that only their Imām could explain. He wrote against them in his book *Faḍāih al-Bāṭiniyya* (The Infamies of the Esotericists), arguing that their ideas weakened Islamic law and faith. He also criticized Greek-influenced philosophers in general, not just Ibn Sīnā and al-Fārābī, because he believed they put too much trust in reason and ignored revelation. Ghazālī even pointed out mistakes he saw among some Sufis who went to extremes and forgot about following Islamic law. However, he supported Sufism when it was balanced with the Quran and Sunnah. His goal in all this criticism was to protect Islamic belief and to bring a balance between reason, law, and spirituality.

Technic & thoughts:

His method was to combine reason with faith. He argued that philosophy alone could not answer life's deepest questions and that spiritual experience through Sufism was essential. He valued both Islamic law and inner spirituality, making his approach unique and balanced.

Death & legacy:

Imam Ghazālī died in 1111 AD in his hometown of Tūs (Iran). His legacy spread across the Muslim world and Europe, and he remains one of the most respected scholars in Islamic history. His writings continue to guide Islamic law, theology, and Sufism. He was honored by the title of Hujjatul Islam (proof of Islam).

Critical/critics perspectives:

Some philosophers, like Ibn Rushd (Averroes), criticized him for attacking philosophy too strongly. Others, however, praised him for saving Islam from excessive rationalism and bringing balance through spirituality. Modern scholars see him as a reformer who united faith and reason.

Conclusion:

Imam Ghazālī was a Sunni Muslim of the Shafi sect (maslak). His works on law, theology, philosophy, and spirituality made him one of the most influential scholars of Islam. His efforts to balance reason with faith and outer practice with inner spirituality earned him the title 'Proof of Islam' and left a lasting impact on Muslim and world thought.

17. Ibn Basal & Ibn Zuhr.

Ibn Basal.

Introduction:

Abū al-Qāsim Ibn Bassāl (1085 AD) was a famous Muslim agronomist (specialist in agriculture) and botanist (specialist in plants etc) from al-Andalus (Islamic Spain). He is remembered for his contributions to agriculture, farming techniques, and plant science during the Islamic Golden Age.

Full name, parent name:

His full name was Abū al-Qāsim Ibn Bassāl. Details about his parents are not clearly recorded, but he came from Toledo in al-Andalus, a region well known for learning and cultural exchange at that time.

Early life & background:

Ibn Bassal was born in Toledo (Ṭulayṭula), Spain during the period of Islamic rule in al-Andalus. His exact year of birth is not known, but historians place his life in the 11th century AD (he was active around the late 1000s and early 1100s). He grew up in Toledo, where he studied agriculture and plants. He was deeply interested in the science of farming, soil, and crops. Later, when Toledo was threatened, he moved to Seville (southern Spain) (Ishbīliya – إشبيلية), where his knowledge was further developed under the patronage of the rulers.

Personality:

Ibn Bassāl was practical, curious, and hardworking. He focused on observation and experimentation in agriculture. He is believed to have been a Sunni Muslim, most likely following the Maliki sect (maslak), as this was the dominant sect (maslak) in al-Andalus (Spain).

In which caliphate:

He lived during the Taifa kingdoms means small kingdoms, after fall of the Córdoba Caliphate (khilaafat) of al-Andalus. Later, he worked under the rule of al-Mutamid ibn Abbād in Seville (southern Spain), who supported his scientific work.

His teacher; education & influences:

He learned from earlier Muslim scholars of agriculture, such as Abū I-Khayr. He was influenced by both earlier Arabic works on farming and knowledge from Mesopotamia, Persia, and Greece, which were translated into Arabic.

Career & historical context:

Ibn Bassāl worked in Seville (southern Spain) as a head gardener and expert in agriculture for the ruler al-Mutamid. He managed gardens, experimented with plants, and introduced new farming techniques. This was a period of scientific and cultural richness in al-Andalus, even though politically the region was divided.

Major work/books:

His most important book is 'Kitāb al-Filāḥa' (The Book of Agriculture), which gives detailed instructions on farming, soil preparation, irrigation, planting, and caring for more than 180 types of plants. It was widely used by later scholars and farmers. He also wrote other treatises on plants and farming methods.

Contribution in modern science:

Ibn Bassāl's writings preserved agricultural knowledge and introduced systematic methods of farming. His descriptions of soil classification, crop rotation, irrigation systems, and plant care influenced both the Islamic world and, later, European agriculture through translations.

Contribution in Islamic wellness:

His works also discussed the health benefits of different plants, herbs, and crops, which contributed to Islamic medicine and wellness. By promoting better farming and plant use, he improved the diet, nutrition, and health of Muslim societies.

Technic & thoughts:

Ibn Bassāl believed in direct observation and practical experience. He explained farming techniques step by step, based on real results, not just theory. His approach was scientific for his time, focusing on accuracy and usefulness.

Death & legacy:

Ibn Bassāl died around 1085 AD. His legacy continued through his book 'Kitāb al-Filāḥa', which was copied and studied by later Muslim and European scholars. He is remembered as one of the greatest agricultural scientists of Islamic Spain.

Critical/critics perspectives:

Some critics note that his works were more practical than theoretical, and he did not focus much on philosophy. However, this was also his strength, as his practical guidance made his works valuable to farmers and scientists alike.

Conclusion:

Abū al-Qāsim Ibn Bassāl was a Sunni Muslim, most likely Maliki, whose practical knowledge of farming and plants left a deep impact on Islamic and European science. His focus on observation, detail, and usefulness made him one of the greatest agricultural experts of the Islamic Golden Age.

Ibn Zuhr.

Introduction:

Ibn Zuhr (Avenzoar) (1091–1161 AD) was one of the greatest Muslim physicians of al-Andalus (Islamic Spain). He was a pioneer in medicine, surgery, and medical experiments, and his works had a huge impact on both the Islamic world and Europe.

Full name, parent name & family:

His full name was Abū Marwān Abdul Malik ibn Abī al-Alā ibn Zuhr al-Iyādī. He was born in Seville (southern Spain), into a family of doctors. His father, Abdul Alā ibn Zuhr, was also a well-known physician, which gave him a strong foundation in medical science.

Early life & background:

Ibn Zuhr was born in 1091 AD in Seville (southern Spain) during the Almoravid rule in Spain. Growing up in a family of doctors, he learned medicine from an early age. Later, under the Almohad dynasty, his career flourished as he became one of the leading physicians of his time.

Personality:

Ibn Zuhr was practical, precise, and deeply dedicated to medical science. He preferred hands-on observation and experiments over mere theory. He was a Sunni Muslim, following the Maliki sect (maslak), which was the dominant sect (maslak) in al-Andalus.

In which caliphate:

He lived during the rule of the Almoravids and later the Almohads Dynasty (dynasty is a line of rulers from the same family who rule one after another.) in al-Andalus and North Africa, both of whom supported scholars and physicians.

His teacher; education & influences:

He was first taught medicine by his father. He was also influenced by earlier Muslim medical scholars such as al-Rāzī and Ibn Sīnā, but he improved their methods through direct experimentation and observation.

Career & historical context:

Ibn Zuhr became the personal physician to several Almohad rulers, including Caliph Abdul Mumin. He practiced medicine, taught students, and wrote books that became reference works for centuries. His career came at a time when al-Andalus was a center of learning and culture, and his works were translated into Latin, spreading his influence to Europe.

Major work/books:

His most famous book is 'Kitāb al-Taysīr fī al-Mudāwāt wa al-Tadbīr' (The Book of Simplification Concerning Therapeutics and Diet), which explained diseases, treatments, and surgical methods.

He also wrote 'Kitāb al-Iqtisād fī Iṣlāḥ al-Anfus wa al-Ajsād' (The Book of Moderation in the Reform of Souls and Bodies), combining health, psychology, and physical care. His works described surgical operations, the use of animal testing, and clinical observations.

Contribution in modern science:

Ibn Zuhr introduced experimental medicine, performing dissections and testing treatments on animals before applying them to humans. He accurately described diseases such as pleurisy, pericarditis, and skin conditions, and recommended surgical techniques that influenced later medicine in both the Islamic world and Europe.

Contribution in Islamic wellness:

He combined medicine with Islamic wellness by emphasizing hygiene, balanced diets, and mental health. His book on moderation linked the care of the soul with the care of the body, showing that health was not just physical but also spiritual and psychological.

Technic & thoughts:

His method was based on observation, experimentation, and practice. Unlike many who relied on earlier texts, he tested ideas and gave clear instructions for surgery, diet, and treatment. His thinking was modern for his time, focusing on evidence and results.

Death & legacy:

Ibn Zuhr died in 1161 AD in Seville. His works continued to be studied in both the Islamic world and medieval Europe, especially after being translated into Latin. He influenced later great doctors like Ibn Rushd (Averroes) and European physicians of the Renaissance.

Critical/critics perspectives:

Some traditional scholars were cautious of his experimental methods, but most respected him for his honesty, precision, and groundbreaking contributions. Western historians later praised him as one of the founders of clinical medicine.

Conclusion:

Ibn Zuhr (Avenzoar) was a Sunni Muslim of the Maliki sect (maslak), whose contributions to surgery, medicine, and health made him one of the greatest physicians of Islamic Spain. His focus on observation, testing, and practical treatment left a lasting mark on world medicine.

18. Al-Idrisi & Al-Rushd (Averroes).

Al-Idrisi.

Introduction:

Al-Idrīsī (1100–1165/66 AD) was a famous Muslim geographer, cartographer (the one who draw maps), and traveler. He is best known for creating one of the most detailed world maps of the medieval period and for writing important works on geography and culture.

Full name, parent name:

His full name was Abū Abdullāh Muḥammad ibn Muḥammad ibn Abdullāh ibn Idrīs al-Ḥammūdī al-Ḥasanī. He came from a noble family that traced its lineage to the Prophet Muhammad ﷺ through Hasan ibn Ali.

Early life & background:

Al-Idrīsī was born around 1100 AD in Ceuta (Morocco, at that time it was part of the Almoravid empire), and studied in Córdoba, Spain. He traveled widely across North Africa, Spain, and possibly as far as Anatolia and France. His wide travels gave him firsthand knowledge of different regions and cultures.

Personality:

He was curious, intelligent, and systematic in collecting knowledge. He had a passion for accuracy in geography and mapping. He was a Sunni Muslim, most likely followed the Maliki sect (maslak). He came from North Africa and Andalusia (Muslim Spain); he was influenced by the rich tradition of learning, geography, and exploration in those regions.

In which caliphate:

He lived during the Almoravid and Almohad dynasty periods in North Africa and al-Andalus but is most famous for working under the Norman King Roger II of Sicily, who invited him to create maps and a geography book.

His teacher; education & influences:

He studied in Córdoba (southern Spain), which was a major center of learning in al-Andalus (Muslim time Spain was called as Andalus). He was influenced by earlier Muslim geographers like al-Bakrī and al-Masūdī, as well as by Greek works of Ptolemy that were available in Arabic.

Career & historical context:

Al-Idrīsī spent much of his career at the court of King Roger II in Palermo, Sicily (Sicily is a large island in the Mediterranean Sea, just off the southern tip of Italy). There, he worked with scholars and craftsmen to create maps, globes, and geographical books. This was a time when Sicily was a crossroads of Muslim, Christian, and Jewish cultures, which helped him collect information from many sources.

Major work/books:

One of the most famous works of al-Idrīsī is called 'Nuzhat al-Mushtāq fī Ikhtirāq al-Āfāq' (The Pleasure of Him Who Longs to Cross the Horizons). In Europe, it became known as 'The Book of Roger' because it was written for King Roger II of Sicily in the 12th century.

In this book, al-Idrīsī gave a very detailed description of the world. He collected knowledge from travelers, sailors, and earlier books. He then wrote about different countries, their people, climate, products, and cultures. This made his book a combination of geography, science, and history.

Along with the book, al-Idrīsī created a huge world map, called a silver planisphere, because it was engraved on a large silver disk. This map showed mountains, rivers, seas, cities, and trade routes with great accuracy for that time.

He also prepared sectional maps that divided the world into different regions. These maps together formed one of the most advanced atlases of the medieval world. His work was so accurate that it was used in Europe and the Muslim world for several centuries.

The 'Book of Roger' shows the high level of scientific knowledge in Muslim Spain and Sicily. It is one of the greatest achievements of medieval geography and cartography.

Contribution in modern science:

Al-Idrīsī's maps were among the most accurate of the Middle Ages, showing rivers, mountains, cities, and trade routes. His work preserved and advanced geographical knowledge, influencing both the Islamic world and Europe for centuries. His maps were even used by explorers during the Age of Discovery.

Contribution in Islamic wellness:

His works helped Muslims by improving trade, travel, and communication across the Islamic world. By giving accurate geographical information, he supported merchants, scholars, and rulers in making better decisions about routes, resources, and administration.

Technic & thoughts:

Al-Idrīsī's technique was to collect reports from travelers, merchants, and earlier books, and then carefully compare and test the information. He combined observation with critical analysis, which made his maps more reliable than earlier ones.

Death & legacy:

Al-Idrīsī died around 1165 or 1166 AD, possibly in Sicily or back in North Africa. His legacy is his groundbreaking world map and his book, which remained important references for both Muslim and European scholars for centuries.

Critical/critics perspectives:

Some critics argue that not all his information was correct, especially about faraway lands he never visited. Still, his careful method and accuracy were far ahead of his time. He is remembered as one of the greatest geographers of the medieval world.

Conclusion:

Al-Idrīsī was a Sunni Muslim, most likely Maliki, who combined travel, study, and careful observation to create some of the best maps and geographical books of his age. His contributions bridged cultures and left a lasting mark on geography and world history.

Ibn Rushd (Averroes).

Introduction:

Ibn Rushd (Averroes, 1126–1198 AD) was one of the greatest Muslim philosophers, jurists, and physicians of al-Andalus (Islamic Spain). He became famous for his commentaries on Aristotle and for trying to harmonize reason with Islamic faith.

Full name, parent name:

His full name was Abū al-Walīd Muḥammad ibn Aḥmad ibn Muḥammad ibn Rushd. His grandfather, also named Ibn Rushd, had served as chief judge of Córdoba.

Early life & background:

Ibn Rushd was born in Córdoba (southern Spain) in 1126 AD into a respected family of judges. He grew up in Córdoba, which was then an important center of learning. He received a strong education in Islamic law, theology, medicine, mathematics, and philosophy. His family background in law helped him build a career as a jurist.

Personality:

Ibn Rushd was rational, logical, and deeply committed to both philosophy and religion. He believed strongly in the power of reason while still respecting Islamic teachings. He was a Sunni Muslim, following the Maliki sect (maslak), which was common in al-Andalus (Spain during Islamic time).

In which caliphate:

He lived during the Almoravid and later the Almohad dynasties in al-Andalus and North Africa. He served under Almohad rulers, especially Caliph Abū Yaḳūb Yūsuf, who supported philosophy and science.

His teacher; education & influences:

He studied law, medicine, and philosophy under several teachers in Córdoba and Seville (southern Spain). He was influenced by earlier Muslim thinkers like Ibn Sīnā (Avicenna) and al-Fārābī, and especially by Aristotle, whose works he explained in detail.

Career & historical context:

Ibn Rushd worked as a judge (Qazi) in Seville and later as the chief judge of Córdoba. He also served as a court physician for the Almohad rulers. He wrote widely in philosophy, law, and medicine. However, in his later life, some conservative scholars accused him of going too far with philosophy, and he was briefly exiled before being restored to favor.

Major work/books:

His most famous writings are his **commentaries on Aristotle**, the great Greek philosopher. Ibn Rushd explained Aristotle's ideas in detail so that others could understand them better. These books were translated into **Latin** and became very important in Europe, where they strongly influenced Christian and Jewish philosophers. Because of this, he is often called the "**Commentator**" in European history.

Another important book by him is "**Tahāfut al-Tahāfut**" (**The Incoherence of the Incoherence**). This book was written as a reply to **Imam al-Ghazālī**, who had criticized philosophy. In his book, Ibn Rushd defended the use of reason and philosophy in Islam, saying that logic and science could go together with faith.

In **medicine**, he wrote a famous work called "**Kitāb al-Kulliyāt fī al-Ṭibb**" (**The Book of Generalities in Medicine**). In Europe, this book was called "**Colliget**". It explained the basic principles of medicine, such as the structure of the body, diseases, and treatment methods. For many years, it was used as a medical textbook in both the Muslim world and Europe.

He also worked in **Islamic law (fiqh)**. His most famous book on this subject is "**Bidāyat al-Mujtahid wa Nihāyat al-Muqtaṣid**". This book is a comparative study of the different schools of Islamic law (sect maslak), such as the Mālikī, Ḥanafī, Shāfi, and Ḥanbalī **sect (maslak)**. He compared their opinions and explained the reasons behind their differences. This made his book very useful for students and judges.

Contribution in modern science:

Through his medical works, Ibn Rushd influenced both Islamic and European medicine. His commentaries on Aristotle laid the foundation for the European Renaissance. He emphasized rational thinking, observation, and systematic study, which were keys to the development of modern science.

Contribution in Islamic wellness:

He contributed to Islamic wellness by connecting reason with faith. His medical works helped improve health and healing, while his legal and philosophical writings encouraged Muslims to think deeply about the harmony between religion and reason. His book on law provided a balanced guide for judges and scholars.

Technic & thoughts:

Ibn Rushd's method was based on reason, logic, and analysis. He believed that philosophy and religion were not in conflict but complemented each other. He encouraged Muslims to use reason as a way to better understand Allah's creation and the Quran.

Death & legacy:

Ibn Rushd died in 1198 AD in Marrakesh (Morocco). His body was later returned to Córdoba for burial. His works had a huge influence not only in the Islamic world but also in Europe, where Christian philosophers like Thomas Aquinas engaged with his ideas.

Critical/critics perspectives:

Some Muslim scholars criticized him for giving too much importance to philosophy, fearing it could weaken religious faith. However, others praised him for defending philosophy and showing that Islam was compatible with reason. In Europe, he was highly respected and known simply as 'The Commentator' on Aristotle.

Conclusion:

Ibn Rushd (Averroes) was a Sunni Muslim of the Maliki sect (maslak), whose contributions to philosophy, medicine, and law shaped both Islamic and European thought. His attempt to unite reason and faith left a lasting legacy, making him one of the most important thinkers of the medieval world.

19. Al-Jazari & Al-Bayṭār

Al-Jazari.

Introduction:

Al-Jazarī (1136–1206 AD) was a brilliant Muslim engineer, inventor, and scholar. He is best known for his work in mechanical engineering, robotics, and automata. His inventions placed him among the greatest engineers of the Islamic Golden Age.

Full name, parent name:

His full name was Badī al-Zamān Abū al-Izz ibn Ismāīl ibn al-Razāz al-Jazarī. His father, Ismāīl ibn al-Razāz, also worked as an engineer in the court of the Artuqid dynasty.

Early life & background:

Al-Jazarī was born in 1136 AD in al-Jazīra (Upper Mesopotamia, in modern Turkey). He grew up in a family skilled in mechanical engineering and inherited technical knowledge from his father. His environment in Mesopotamia, a hub of learning and creativity, greatly shaped his career.

Personality:

Al-Jazarī was inventive, practical, and creative. He combined deep technical knowledge with artistic design. He was a Sunni Muslim, most likely following the Shafi or Hanafi sect (maslak), but his main identity was as a scientist and engineer who served society.

In which caliphate:

He lived during the time of the Artuqid dynasty, a branch of the Seljuk Turks who ruled parts of eastern Anatolia and northern Mesopotamia. The Artuqid rulers were patrons of science and supported his inventions.

His teacher; education & influences:

He was trained by his father, who worked as a court engineer. He was influenced by earlier Muslim inventors like the Banū Mūsā brothers and also by Greek mechanical traditions, but he developed his own unique style and innovations.

Career & historical context:

Al-Jazarī served as chief engineer at the Artuqid court in Diyarbakir (in modern Turkey). He worked for several Artuqid rulers, designing water machines, clocks, and automata. His work represents the high point of mechanical engineering in the Islamic Golden Age.

Major work/books:

Al-Jazarī's most famous book is "**Kitāb fī Ma'rifat al-Ḥiyal al-Handasiyya**" (**The Book of Knowledge of Ingenious Mechanical Devices**), completed in **1206 AD**. This book is one of the greatest works in the history of engineering. In it he described **100 different mechanical devices**, and what makes it very special is that he did not just write about them, but also included **clear illustrations and step-by-step instructions** on how to build them. Some of his inventions were practical, like **water-raising machines and pumps** used for farming and supplying water to cities. Others were more decorative and entertaining, such as **automata (mechanical robots), musical devices, and fountains** that moved in clever ways. He also designed **water clocks** that showed the time in creative forms, often decorated with figures that moved automatically.

This book is considered a **masterpiece of medieval engineering** because it combines theory with practice. Al-Jazarī's machines show a deep understanding of mechanics, hydraulics, and design. Many of his ideas were later used in both the Islamic world and Europe, influencing the development of engineering and technology. Today, historians see his book as an early example of **robotics and mechanical engineering**, proving that Muslim inventors of the medieval period were far ahead of their time.

Contribution in modern science:

Al-Jazarī's inventions laid the foundation for modern mechanical engineering, robotics, and automation. He created the first known programmable humanoid robot, water-raising machines, and intricate clocks. His crankshaft design is seen as an early step toward modern engines.

Contribution in Islamic wellness:

His water-raising devices improved access to clean water, which supported hygiene, agriculture, and daily life in Islamic societies. His fountains and automata also decorated mosques and palaces, showing the harmony of science, art, and Islamic culture.

Technic & thoughts:

Al-Jazarī's approach was highly practical. He provided detailed instructions, illustrations, and step-by-step guides for building machines. He combined creativity with usability, ensuring that his inventions could be replicated and used in real life.

Death & legacy:

Al-Jazarī died in 1206 AD. His legacy lived on through his book and inventions, which were translated and studied in later centuries. European engineers of the Renaissance were influenced by his work, especially in clock-making and hydraulics.

Critical/critics perspectives:

Some critics note that his inventions were sometimes too complex to be practical on a large scale. However, his creativity, precision, and documentation made his works valuable for the history of engineering.

Conclusion:

Al-Jazarī was a Sunni Muslim, inventor and engineer, most likely Shafi or Hanafi, who combined science, art, and engineering. His book and machines placed him among the greatest engineers of history, leaving a legacy that shaped both Islamic and world technology.

Al-Bayṭār

Introduction:

Ibn al-Bayṭār (1197–1248 AD) was a famous Muslim botanist, pharmacist, and physician from al-Andalus (Islamic Spain). He is remembered as one of the greatest scholars of medicinal plants in the medieval Islamic world.

Full name, parent name:

His full name was ʿIyāduddīn Abū Muḥammad Abdullāh ibn Aḥmad al-Mālaqī, popularly known as Ibn al-Bayṭār. His father name was Ahmad but was known as 'al-Bayṭār' (the veterinarian), which gave him his nickname.

Early life & background:

Ibn al-Bayṭār was born in Málaga (southern Spain) around 1197 AD. From a young age, he was interested in plants, herbs, and their medical uses. He traveled widely across North Africa, the Middle East, and Asia Minor to collect and study medicinal plants.

Personality:

He was curious, hardworking, and dedicated to science. He combined deep observation with practical application. He was a Sunni Muslim, most likely following the Maliki sect (maslak), which was common in al-Andalus.

In which caliphate:

He lived during the later Almohad Caliphate in Spain and North Africa, and later worked under the Ayyubid dynasty in Egypt.

His teacher; education & influences:

He studied botany and pharmacology under Abū al-Abbās al-Nabātī in Seville (إشبيلية) (southern Spain). He was influenced by earlier scholars such as Dioscorides, Galen (through Arabic translations), al-Rāzī, and Ibn Sīnā, but he added his own discoveries through travel and observation.

Career & historical context:

Ibn al-Bayṭār worked as the chief herbalist and physician for the Ayyubid rulers in Cairo, especially under Sultan al-Kāmil. He traveled across North Africa, Syria, and Asia Minor to collect plants. His career shows the scientific richness of the Islamic Golden Age, when Muslim scholars preserved and advanced medical knowledge.

Major work/books:

Ibn al-Bayṭār's most famous book is **“al-Jāmi li-Mufradāt al-Adwiya wa al-Aghdhiya” (Compendium on Simple Medicaments and Foods)**. This work is considered as one of the greatest contributions to botany and medicine in the Islamic Golden Age. In it he described about **1,400 plants, foods, and drugs**, carefully explaining their medical uses, benefits, and preparation. What makes this book very important is that **300 of these items were his own discoveries**, showing how much original research he did. The book was written in a clear way, combining information from earlier scholars like Dioscorides and Galen with his own experiments and observations. It later became a **standard reference for doctors and pharmacists** in both the Islamic world and Europe.

Another important book by Ibn al-Bayṭār is **“al-Mughnī fī al-Adwiya al-Mufradā” (The Sufficient Book on Simple Medicaments)**. This was a type of **medical encyclopedia** that organized medicines according to the parts of the human body they could cure, making it very practical for physicians. It helped doctors quickly find treatments for different illnesses using natural remedies. Because of its usefulness, this book was widely copied, translated, and studied in both East and West.

Dioscorides (40-90 AD) was a Greek (Turkey) doctor and botanist who lived in the first century during the Roman Empire. He is most famous for his book **“De Materia Medica”**, which described hundreds of plants, herbs, and drugs and explained how they could be used for healing. This book was so important that it was used for more than **1,500 years** in Europe and the Islamic world. Muslim scientists and doctors translated his work into Arabic and added new information to it.

Galen (129-216), on the other hand, was a Greek (Turkey) physician and surgeon who lived in the second century. He wrote many books about the human body, diseases, and treatments. He also developed the **theory of the four humors (blood, phlegm, yellow bile, and black bile)**, which became the main medical theory in both Europe and the Islamic world for many centuries. His works were translated into Arabic and deeply influenced Muslim doctors like al-Rāzī, Ibn Sīnā, and Ibn al-Bayṭār.

Contribution in modern science:

Ibn al-Bayṭār's works formed the basis of pharmacology and botany for centuries. His precise descriptions of plants and their uses influenced later Muslim and European medicine. His identification of new plants added to global scientific knowledge.

Contribution in Islamic wellness:

His books supported Islamic wellness by guiding physicians on how to use natural remedies, herbs, and diets to cure illnesses. His work emphasized prevention, healthy eating, and the use of nature for healing, which improved public health in the Islamic world.

Technic & thoughts:

Ibn al-Bayṭār's method was based on travel, observation, and experimentation. He tested plants, recorded their benefits, and compared his findings with earlier scholars. His scientific attitude made his works accurate and practical.

Death & legacy:

Ibn al-Bayṭār died in Damascus (Syria) in 1248 AD while on a scientific expedition. His works remained standard references in botany and medicine for centuries and were translated into Latin, influencing European medicine until the Renaissance.

Critical/critics perspectives:

Some later critics pointed out that not all his remedies were effective, but most praised his accuracy, wide research, and practical contributions. He is regarded as one of the greatest herbalists in history.

Conclusion:

Ibn al-Bayṭār was a Sunni Muslim, most likely of Maliki sect (maslak), whose dedication to plants and medicine advanced both Islamic and world science. His works shaped botany and pharmacology, making him one of the most important scientists of the medieval era.

20. Ibn Al-Awwam & Al-Ṭūsī

Ibn Al-Awwam.

Introduction:

Ibn al-Awwām (1180 AD) was a Muslim agriculturalist and writer from Seville (southern Spain) in al-Andalus (Islamic Spain). He is remembered for his important contributions to agriculture, farming, and soil science during the Islamic Golden Age.

Full name, parent name:

His full name was Abū Zakariyyā Yaḥyā ibn Muḥammad ibn al-Awwām al-Ishbīlī. His father's name was Muhammad. But details about his parents are limited. His family background gave him opportunities to study and practice agriculture.

Early life & background:

Ibn al-Awwām was born & grew up in Seville (southern Spain), born in which year is not recorded, but he was active around 1180 AD; at that time Seville was a major center of learning and culture in al-Andalus (Islamic Spain). He developed a passion for farming, plants, and natural science, which later shaped his career as one of the greatest agricultural scholars of medieval Islam.

Personality:

He was practical, curious, and hardworking. His writings show attention to detail and dedication to practical knowledge. He was a Sunni Muslim, most likely following the Maliki sect (maslak), which was the dominant sect (maslak) in al-Andalus.

In which caliphate:

He lived during the later rulers like Almoravid and early Almohad dynasties in al-Andalus, a period marked by both political struggles and rich scientific and cultural activity.

His teacher; education & influences:

While details of his teachers are not clearly recorded, Ibn al-Awwām was influenced by earlier Muslim agricultural scholars such as Ibn Bassāl and Abū al-Khayr. He also drew on Greek, Roman, and Mesopotamian agricultural traditions available in Arabic translations.

Abū al-Khayr al-Ishbīlī was a Muslim scholar from **Seville (Ishbīliya) in al-Andalus, Spain**, who lived in the **11th–12th century**. He was an expert in **agriculture and plants** and is most famous for writing a book called “**Kitāb al-Filāḥa**” (**The Book of Agriculture**). In this book, he gave practical advice on how to grow crops, fruit trees, and medicinal plants. He also explained how to take care of soil, manage water for farming, and protect plants from pests and diseases. His work was very detailed and showed deep knowledge of farming in Andalusia. **Ibn al-Awwām**, learned from his writings and used them in his own books. Because of this, Abū al-Khayr is remembered as one of the **early pioneers of agricultural science** in the Islamic world.

Career & historical context:

Ibn al-Awwām worked as a farmer and scholar in Seville (southern Spain). His career was shaped by the rich agricultural practices of al-Andalus (Islamic Spain), where irrigation, soil management, and crop diversity were highly advanced. He combined practical farming with scholarly writing.

Major work/books:

Ibn al-Awwām's most famous book is "**Kitāb al-Filāḥa**" (**The Book of Agriculture**), which is one of the greatest works on farming from the medieval Islamic world. The book is very large, with more than **1,000 pages**, and it brings together knowledge from earlier Greek, Roman, and Muslim scholars as well as Ibn al-Awwām's own experience. In it, he described more than **585 different plants**, giving details about their uses, how to grow them, and how to protect them from diseases. He also explained how to **classify different types of soil**, how to use **irrigation systems** to water fields, and methods of **grafting** trees to improve their fruits. The book does not only talk about plants but also includes information on **animal husbandry**, explaining how to take care of animals that are important for farming, such as cattle, sheep, and bees.

This book became one of the **most complete agricultural manuals of the medieval period**, and it shows the high level of scientific knowledge in al-Andalus. It was later translated into Spanish and other European languages, which helped spread agricultural science from the Islamic world to Europe. Because of its detail and practical advice, the *Kitāb al-Filāḥa* remained a valuable reference for centuries.

Contribution in modern science:

Ibn al-Awwām's work preserved and advanced agricultural knowledge. His book was later translated into Spanish and French, influencing European agricultural practices. His detailed explanations of soil types, crop rotation, and irrigation systems contributed to the foundations of modern agricultural science.

Contribution in Islamic wellness:

By promoting better farming techniques, healthier crops, and efficient irrigation, his work supported Islamic wellness by improving food supply, nutrition, and public health in Muslim societies. His focus on fruits, herbs, and medicinal plants also contributed to Islamic medicine.

Technic & thoughts:

He believed in careful observation, recording experiences, and testing farming methods. His approach was systematic and practical, making his book useful for both scholars and farmers. He combined theory with real-life agricultural practice.

Death & legacy:

Ibn al-Awwām died around 1180 AD in Seville. His legacy lived on through his 'Kitāb al-Filāḥa', which was widely used in the Islamic world and later in Europe. He is remembered as one of the most important agricultural scientists of medieval history.

Critical/critics perspectives:

Some critics noted that not all of his knowledge was original since he collected from earlier sources. However, his ability to organize, expand, and apply this knowledge made his work unique and valuable.

Conclusion:

Ibn al-Awwām was a Sunni Muslim, most likely Maliki, whose dedication to agriculture and farming created one of the most comprehensive books on the subject. His combination of theory and practice made him a key figure in the history of agricultural science.

Ibn Ṭūsī

Introduction:

Naṣīr al-Dīn al-Ṭūsī (1201–1274 AD) was a famous Muslim scholar, astronomer, mathematician, philosopher, and theologian. He made great contributions to science, especially astronomy, during the Islamic Golden Age.

Full name, parent name:

His full name was Muḥammad ibn Muḥammad ibn al-Ḥasan al-Ṭūsī. His father's name was Muhammad & was a jurist (scholar of Fiqh). His father gave him (to Ibn Tusi) his first lessons in religion and science.

Early life & background:

Al-Ṭūsī was born in 1201 AD in Ṭūs, in Khurasan (modern Iran). From an early age, he showed great interest in learning and was trained in Islamic sciences, philosophy, mathematics, and astronomy. He lived through the Mongol invasions, which shaped his career and movements.

Personality:

Al-Ṭūsī was intelligent, disciplined, and versatile. He combined religious devotion with scientific curiosity. He was a Shia Muslim, specifically a Twelver (Jafari) Shia, and his works reflect both his faith and rational inquiry.

In which caliphate:

He lived during the decline of the Abbasid Caliphate and the rise of the Mongol Empire. After the Mongols captured Baghdad in 1258 AD, al-Ṭūsī worked under Hulagu Khan, the Mongol ruler.

His teacher; education & influences:

He studied under well-known scholars in Nishapur and other cities. He was influenced by earlier Muslim thinkers such as Ibn Sina (Avicenna), al-Farabi, and al-Kindī, as well as Greek philosophy and Indian astronomy.

Career & historical context:

Al-Ṭūsī worked in many fields: astronomy, mathematics, philosophy, ethics, and theology. After initially working under Muslim rulers, he later joined Hulagu Khan's service, where he established the famous Maragha Observatory in 1259 AD. This observatory became one of the greatest centers of astronomy in the medieval world.

Major work/books:

He wrote many important works. His most famous book on astronomy is 'Zīj-i Īlkhānī' (Ilkhanic Tables), based on observations at the Maragha Observatory.

The Maragha Observatory, built in 1259 AD in Maragha (northwest Iran), was one of the most advanced scientific centers of the medieval world. It was founded under the patronage of Hülegü Khan, the Mongol ruler, and directed by the famous Muslim scholar Naṣīr al-Dīn al-Ṭūsī. The observatory was equipped with large instruments to measure the positions of stars and planets, such as armillary spheres and mural quadrants, and it also contained a vast library with thousands of manuscripts on astronomy, mathematics, and philosophy. Scholars from different cultures, including Muslims, Christians, and Chinese, worked together at Maragha, making it a hub of international scientific exchange. Al-Ṭūsī developed new planetary models here, including the famous "Ṭūsī Couple," a mathematical device that later influenced the work of Copernicus in Europe. The research and discoveries made at the Maragha Observatory shaped Islamic astronomy for centuries and played a key role in transmitting scientific knowledge to the European Renaissance.

In mathematics, he wrote on trigonometry and developed formulas still used today. His book 'Akhlāq-i Nasirī' (Nasirean Ethics) was highly influential in philosophy and ethics. He also wrote on logic, theology, and science.

Contribution in modern science:

Al-Ṭūsī developed trigonometry as a separate branch of mathematics, introduced the 'Tusi-couple' (a mathematical model later used by Copernicus), and improved astronomical models. His observatory advanced the accuracy of astronomical data and influenced later European astronomy.

The Ṭūsī Couple was a brilliant mathematical device created by the Persian scholar Naṣīr al-Dīn al-Ṭūsī in the 13th century at the Maragha Observatory. It consists of a small circle rotating inside a

larger circle that is exactly twice its diameter. As the smaller circle rotates, at the point on its circumference moves back and forth in a straight line. This was a major breakthrough because it showed how linear motion could be generated from the combination of two circular motions, something that was very important for improving astronomical models. Al-Ṭūsī used the couple to refine Ptolemaic astronomy, making planetary models more accurate without breaking the Aristotelian idea that celestial bodies should move in circles. His invention influenced later Muslim astronomers and, centuries later, even appeared in the work of Nicolaus Copernicus, helping shape the scientific foundations of modern astronomy.

Nicolaus Copernicus (1473–1543) was a Polish mathematician and astronomer who revolutionized science by proposing the heliocentric theory, which stated that the Earth and other planets revolve around the Sun. This idea challenged the long-accepted geocentric model of Ptolemy, where the Earth was seen as the center of the universe. Copernicus presented his theory in his famous book *De revolutionibus orbium coelestium* (“On the Revolutions of the Heavenly Spheres”), published in 1543. His work laid the foundation for modern astronomy and inspired later scientists like Galileo, Kepler, and Newton, making him a key figure in the Scientific Revolution.

Contribution in Islamic wellness:

Through his works on ethics and philosophy, especially 'Akhlāq-i Nasiri', he guided Muslims on moral values, personal discipline, and just governance. His contributions to science and health also supported Islamic wellness by promoting rational knowledge and practical wisdom.

Technic & thoughts:

He believed in the harmony of reason and faith. His methods combined observation, logic, and mathematics. He insisted on accuracy in astronomy and honesty in philosophical and ethical discussions.

Death & legacy:

Al-Ṭūsī died in 1274 AD in Baghdad. His legacy lived on through his books, observatory, and scientific models. His influence reached not only the Islamic world but also medieval Europe, where his mathematical ideas were used in astronomy.

Critical/critics perspectives:

Some critics questioned his service under the Mongols, but many admired how he used this position to save knowledge and promote science. He is praised for his honesty, intelligence, and wide-ranging scholarship.

Conclusion:

Naṣīr al-Dīn al-Ṭūsī was a Twelver (Jafari) Shia Muslim whose brilliance in science, philosophy, and ethics made him one of the greatest scholars of the Islamic Golden Age. His combination of faith, reason, and scientific method left a lasting mark on Islamic and world history.

21. Al-Rumi & Ibn Nafis.

Al-Rumi.

Introduction:

Jalāluddīn Rūmī (1207–1273 AD) was a world-famous Muslim poet, Sufi mystic, and scholar. He is best known for his spiritual poetry and teachings that emphasized love, unity, and closeness to Allah.

Full name, parent name:

His full name was Jalāluddīn Muḥammad ibn Muḥammad al-Balkhī al-Rūmī. His father was Bahauddin Walad, a respected Islamic scholar and preacher, who later moved the family to Anatolia (Turkey).

Early life & background:

Rumi was born in 1207 AD in Balkh (Afghanistan). His family fled Balkh due to the Mongol invasions and eventually settled in Konya (south-central Turkey, located in the Anatolia region), which was under the Seljuk Sultanate of Rum (Rome). This is why he is called 'al-Rūmī'. He studied Islamic law, Quran, Hadith, and Sufism from a young age.

Personality:

Rumi was deeply spiritual, compassionate, and loving. He believed in spreading love and understanding beyond divisions of religion and culture. He was a Sunni Muslim, most closely linked with the Hanafi sect (maslak), and his teachings were rooted in Islamic faith and Sufi mysticism.

In which caliphate:

Rumi lived during the decline of the Abbasid Caliphate, but he spent most of his life in the Seljuk Sultanate of Rum (Rome), where he was respected as a scholar and spiritual leader.

His teacher; education & influences:

His main teacher was his father, Bahauddin Walad. Later, his spiritual life was transformed by meeting Shams al-Tabrizi, a wandering Sufi dervish, who became his close companion and guide. Rumi was also influenced by earlier scholars like al-Ghazali and Sufi traditions.

Career & historical context:

Rumi became a respected teacher of Islamic law and theology in Konya. After meeting Shams al-Tabrizi, he devoted more of his life to spirituality, poetry, and guiding students in Sufism. His career reflects the spiritual and intellectual richness of the 13th century Islamic world.

Major work/books:

His most famous book is the 'Masnavi-ye Ma'navi' (Spiritual Couplets), a six-volume masterpiece of Sufi poetry that explains the journey of the soul towards Allah. Another important collection is the 'Diwan-e Shams-e Tabrizi' (The Collected Poems of Shams of Tabriz), dedicated to his beloved teacher. He also wrote prose works like 'Fihi Ma Fihi' (It Is What It Is), which records his spiritual conversations.

Contribution in modern science:

Though he was not a scientist in the modern sense, Rumi's work contributed to the philosophy of science and psychology by emphasizing the role of love, unity, and self-awareness in human life. His universal message influenced later thinkers in both the East and West.

Contribution in Islamic wellness:

Rumi's poetry and teachings inspired generations of Muslims to seek closeness to Allah through love, remembrance (dhikr), and inner purification. His message of tolerance and compassion contributed to Islamic spirituality and wellness of the heart and mind.

Technic & thoughts:

Rumi's technique was to use poetry, stories, and metaphors to explain deep truths. His thoughts centered on divine love, unity of existence, and the idea that the soul's purpose is to return to Allah. He saw music, dance (whirling dervishes), and poetry as paths to spiritual awakening.

The Mevlevi Sufi Order (also called the Whirling Dervishes) is a famous Sufi brotherhood founded in the 13th century in Konya, Anatolia (modern-day Turkey). It was established by the followers of the great Persian poet, scholar, and mystic Jalāluddīn Rūmī (1207–1273) after his death. His son, Sultan Walad, organized the order formally.

Death & legacy:

Rumi died in 1273 AD in Konya. His followers established the Mevlevi Sufi order (Whirling Dervishes) in his memory. His works were translated into many languages, making him one of the most widely read poets in the world.

Critical/critics perspectives:

Some conservative scholars criticized his use of music, dance, and poetry in spiritual practice. However, most admired his piety, wisdom, and ability to inspire love for Allah. In the modern world, he is celebrated globally for his universal message of love and unity.

Conclusion:

Jalāluddīn Rūmī was a Sunni Muslim, following the Hanafi tradition, whose poetry and teachings united faith, love, and spirituality. His message of divine love continues to inspire millions around the world, making him one of the most influential spiritual figures in history.

Ibn Nafis.

Introduction:

Ibn al-Nafīs (1213–1288 AD) was a great Muslim physician, philosopher, and scholar. He is best known for discovering the pulmonary circulation of the blood, centuries before it was known in Europe.

Full name, parent name:

His full name was Ala al-Dīn Abū al-Ḥasan ‘Alī ibn Abī al-Ḥazm al-Qurashī al-Dimashqī, but he is commonly called Ibn al-Nafīs. His father’s name was Abū al-Ḥazm. He belonged to an Arab family and was raised in Damascus.

Early life & background:

He was born in 1213 AD in Damascus, Syria. From an early age, he showed talent in science and medicine. He grew up during a time when Damascus was an important center for learning.

In which caliphate:

He lived during the later period of the Abbasid Caliphate, but politically, his lifetime was marked by the Ayyubid and early Mamluk rule in Syria and Egypt.

His teacher; education & influences:

He studied medicine at the al-Nuri Hospital in Damascus under leading doctors such as Muḥaddhab al-Dīn al-Dakhwār. He was influenced by earlier scholars like Avicenna (Ibn Sina) and Galen, though he later challenged some of their views.

Career & historical context:

Ibn al-Nafīs moved to Cairo, where he worked at the al-Nasiri and al-Mansuri hospitals. He became the chief physician and also taught medicine, law, and philosophy. His career took place during the time of the Crusades and Mongol invasions, yet Cairo remained a center of learning.

Major work/books:

Ibn al-Nafīs wrote many important works on medicine, philosophy, and law. His most famous books:

1. Sharḥ Tashrīḥ al-Qānūn (Commentary on Avicenna’s Canon of Medicine), where he explained anatomy in detail and first described the pulmonary circulation of blood, showing how blood moves from the heart to the lungs and back.
2. Al-Mukhtārāt fī al-Ṭibb (Selected Medical Topics), which was like a medical handbook covering treatments and remedies.

3. **Kitāb al-Shāmil fī al-Ṭibb** (The Comprehensive Book on Medicine), a very large encyclopedia of medical knowledge, though it was never fully completed.

Contribution in modern science:

He was the first to correctly describe pulmonary circulation, rejecting Galen's old theory. His discovery was a turning point in medical science, though it was only recognized in Europe centuries later. His writings also covered philosophy, law, and theology, showing his wide knowledge.

Technic & thoughts:

Ibn al-Nafīs believed in observation and reasoning rather than blindly following earlier authorities. He carefully studied anatomy and corrected mistakes of Galen and Avicenna (Ibn sina). He also connected medicine with philosophy and Islamic thought.

Death & legacy:

He died in Cairo in 1288 AD. He donated his house and library to the Mansuri Hospital. His legacy lives on as the discoverer of pulmonary circulation and as one of the greatest physicians of the Islamic Golden Age.

Critical/critics perspectives:

Some of his works were overlooked for centuries because Europe focused on Galen and later discoveries. Critics say his ideas did not spread widely in his time. However, modern historians praise him as a pioneer of medicine and science.

Conclusion:

Ibn al-Nafīs was a brilliant physician and thinker whose discovery of pulmonary circulation placed him centuries ahead of his time. His combination of science, observation, and faith makes him one of the most important scholars in Islamic and world history.

22. Imām Ibn Qayyim & Al-Shatir.

Imam Ibn Qayyim.

Introduction:

Imām Ibn Qayyim al-Jawziyyah (1292–1350 AD) was a famous Muslim scholar, jurist, and spiritual writer. He is well known for his book 'Ṭibb al-Nabawi' (Medicine of the Prophet), which discusses health, medicine, and healing according to Islamic teachings.

Full name, parent name:

His full name was Muhammad ibn Abi Bakr ibn Ayyub ibn Sa'd al-Zur'i al-Dimashqi, also called Ibn Qayyim al-Jawziyyah. His father, Abu Bakr, was the caretaker of the Al-Jawziyyah school in Damascus.

Early life & background:

He was born in Damascus, Syria, in 1292 AD during the Mamluk Sultanate. From a young age, he was devoted to learning and became known for his sharp memory and love of knowledge.

Personality:

He had a kind heart, strong faith & deep knowledge. He focused on purification of soul, following Quran & Hadith. He was a Sunni Muslim followed Hanbali Sect (maslak) in Islamic fiqh & Salafi in Aqeedah; he was inspired by his teacher Ibn Taymiyyah.

In which caliphate:

He lived during the time of the Mamluk Sultanate, after the fall of the Abbasid Caliphate in Baghdad.

His teacher; education & influences:

His most famous teacher was Ibn Taymiyyah, a leading reformist scholar of the time. He also studied Quran, Hadith, law, and Arabic literature with other scholars in Damascus.

Career & historical context:

Ibn Qayyim became a jurist, theologian, and writer. He supported his teacher Ibn Taymiyyah's reformist views, which sometimes caused conflict with other scholars and rulers. Despite imprisonment with his teacher, he continued teaching and writing.

Major work/books:

1. **Tibb al-Nabawi (Prophetic Medicine):** This book is about health, healing, and medicine based on the teachings and practices of the Prophet ﷺ. It includes natural remedies, advice on diet, hygiene, exercise, and the use of herbs and honey. It also discusses the role of faith, duā, and Quranic verses in healing. The book shows how spiritual well-being and physical health are connected.
2. **Zaad al-Maād (Provisions for the Hereafter):** This is one of Ibn Qayyim's largest and most famous books. It covers the life of the Prophet ﷺ, his character, worship, lifestyle, and guidance for Muslims. The book also includes sections on law, ethics, spirituality, and medicine. Ibn Qayyim used this work to show that the Prophet ﷺ is the perfect example in every part of life.
3. **Madārij al-Sālikīn (Steps of the Seekers):** This is a spiritual book about the journey of the soul toward Allah. Ibn Qayyim explains the famous Sufi text "Manāzil al-Sā'irīn" by al-Harawī, but he adds his own insights. The book describes the stages of faith, patience, love of Allah, sincerity, and closeness to Allah. It shows how to balance Shariah (law) with Tasawwuf (spirituality).
4. **I'lām al-Muwaqqi'in: (Instruction for the Signers on Behalf of the Lord of the Worlds).** This is a book about Islamic law (fiqh) and the responsibility of scholars. It explains the role of the mufti (Islamic jurist who gives fatwas) as someone who speaks on behalf of Allah's law. Ibn Qayyim gives rules on how to make legal decisions based on Qur'an, Hadith, consensus, and reasoning. It also criticizes blind imitation and urges scholars to use evidence.

Contribution in modern science:

Although his medical ideas were based on prophetic traditions and natural remedies, they inspired later Muslim and even non-Muslim doctors to explore

connections between faith, health, and natural medicine. His writings are still studied in Islamic medicine today.

Technic & thoughts:

He believed in combining knowledge of Quran and Hadith with practical life, including medicine, spirituality, and law. He stressed purification of the soul, reliance on authentic hadith, and practical solutions for human problems.

Death & legacy:

Ibn Qayyim died in Damascus in 1350 AD and was buried in Bab al-Saghir cemetery. He left behind many books that shaped Islamic law, spirituality, and medicine. His works continue to be read by both scholars and ordinary Muslims.

Critical/critics perspectives:

Some scholars during Imām Ibn Qayyim's time criticized him because he followed the reformist ideas of his teacher Ibn Taymiyyah, who spoke against common practices like over-respecting saints or asking them for help. But many others admired Ibn Qayyim for his honesty, strong faith, and deep knowledge.

Conclusion:

Imām Ibn Qayyim was a great scholar whose works joined faith, law, and medicine. His book 'Tibb al-Nabawi' remains a key source of Islamic guidance on health, while his writings on law and spirituality continue to inspire Muslims worldwide.

Al-Shatir.

Introduction:

Ibn al-Shāṭir (1304–1375 AD) was a famous Muslim astronomer, mathematician, and Salah timekeeper from Damascus masjid. He is remembered for his new planetary models, which later influenced European astronomy.

Full name, parent name:

His full name was Alāuddīn Abū al-Ḥasan Alī ibn Ibrāhīm ibn al-Shāṭir. His father's name was Ibrāhīm, and his family worked in crafts and trades. He is also called as Shamsuddin (Shams Al-din).

Early life & background:

Ibn al-Shāṭir was born in Damascus (Syria) in 1304 AD. He grew up in Damascus, where he was trained as a muwaqqit (Salah-timekeeper) at the Umayyad Mosque. This role required expertise in astronomy to calculate (Salah) prayer times and the direction of the Qibla.

Personality:

He was intelligent, precise, and devoted to both science and religion. He was a Sunni Muslim, most likely following the Shafi sect (maslak), and his work reflected a balance between faith and scientific curiosity.

In which caliphate:

He lived during the time of the Mamluk Sultanate, when Damascus was an important center of Islamic learning and culture.

His teacher; education & influences:

He was educated in astronomy, mathematics, and Islamic sciences in Damascus. He was influenced by earlier Muslim astronomers such as al-Tusi and Ptolemaic models from Greek science, though he later corrected them.

Career & historical context:

Ibn al-Shāṭir worked as the chief muwaqqit (Salah-timekeeper) of the Umayyad Mosque in Damascus. In this role, he designed instruments and refined astronomical tables to improve accuracy in timekeeping and (Salah) prayer schedules. His career reflects the strong link between religion and science in the medieval Islamic world.

Major work/books:

Al-Shāṭir made great contributions to Islamic astronomy during the Mamluk period. His most famous work is **“al-Zīj al-Jadīd” (The New Astronomical Tables)**, where he presented his own improved planetary models. In this book, he carefully revised earlier astronomical data and created more accurate tables for predicting the positions of the planets, the Sun, and the Moon.

Another very important book he wrote is **“Nihāyat al-Sūl fī Taṣḥīḥ al-Uṣūl” (The Final Quest for the Rectification of Principles)**. In this work, al-Shāṭir offered strong corrections to **Ptolemaic astronomy**, which had been the standard since ancient Greece. He introduced new mathematical models for planetary motion that removed some of the weaknesses in Ptolemy’s system. These ideas were so advanced that centuries later, scholars noticed they were similar to the models later used by **Copernicus** in Europe.

Besides his theoretical works, al-Shāṭir was also interested in practical astronomy and the design of instruments. He wrote about making and using **sundials, astronomical clocks, and other devices** to measure time and track celestial bodies. As the **Salah-timekeeper (muwaqqit) of the Umayyad Mosque in Damascus**, he applied his knowledge of astronomy to help organize (Salah) prayer times with great accuracy. Through his books and instruments, al-Shāṭir left a deep mark on both Islamic and world science.

Contribution in modern science:

Ibn al-Shāṭir’s planetary model, which eliminated the equate point used in Ptolemaic astronomy, was mathematically very similar to the model later used by Copernicus. His instruments improved timekeeping, and his observations advanced astronomy significantly.

Contribution in Islamic wellness:

His accurate astronomical tables helped Muslims determine precise (Salah) prayer times and Qibla direction, supporting Islamic religious practices. His innovations also improved the Islamic calendar and Salah-timekeeping in mosques.

Technic & thoughts:

He combined careful observation with mathematical innovation. His thoughts were practical, aiming to improve accuracy in science while staying faithful to religious needs.

Death & legacy:

Ibn al-Shāṭir died in 1375 AD in Damascus. His legacy includes his innovative astronomical models and his role in connecting Islamic astronomy with later European science.

Critical/critics perspectives:

Some later scholars underestimated his contributions, but modern historians now recognize his planetary model as a key step towards the Copernican revolution. Critics in his time may have been cautious about changes to Ptolemaic tradition, but his accuracy could not be denied.

Conclusion:

Ibn al-Shāṭir was a Sunni Muslim, likely of the Shafi sect (maslak), whose devotion to both Islam and science made him one of the greatest astronomers of the medieval Islamic world. His precise models and instruments bridged Islamic and European astronomy.

23. Ibn Baṭṭūṭa & Ibn Al-Furat.

Ibn Baṭṭūṭa

Introduction:

Ibn Baṭṭūṭa (1304–1369 AD) was a famous Muslim traveler, explorer, and writer from Morocco (north-west Africa). He is remembered for his long journeys across the Islamic world and beyond, which he recorded in his travel book.

Full name, parent name:

His full name was Abū Abdullāh Muḥammad ibn Abdullāh ibn Muḥammad ibn Ibrāhīm al-Lawātī al-Ṭanjī. His father's name is Abdullah.

Early life & background:

Ibn Baṭṭūṭa was born in Tangier, Morocco, in 1304 AD into a Berber family of Islamic judges (Qazi). He grew up in Tangier in a religious family. At the age of 21, he set out on a journey to Makkah for Hajj (pilgrimage), which became the start of his lifetime of traveling.

Personality:

He was adventurous, curious, and deeply religious. Ibn Baṭṭūṭa was a Sunni Muslim of the Maliki sect (maslak). His writings reflect both his love of travel and his commitment to Islam.

In which caliphate:

He lived during the decline of the Abbasid Caliphate and the rise of regional Islamic dynasties such as the Marinid dynasty in Morocco, the Delhi Sultanate in India, and the Mamluk Sultanate in Egypt.

His teacher; education & influences:

He was educated in Islamic law (fiqh) under the Maliki sect (maslak) in Morocco. He was influenced by scholars he met during his travels in North Africa, the Middle East, India, and beyond.

Career & historical context:

Ibn Baṭṭūṭa worked as a Qazi (Islamic judge) in different regions including India and the Maldives. His career was shaped by his travels across North Africa, Sub-Saharan Africa, the Middle East, Persia, Central Asia, India, China, and even parts of Europe.

Major work/books:

Ibn Baṭṭūṭa's most famous book is the "**Rihla**" (**The Journey**), which he dictated to the scholar **Ibn Juzayy** when he returned to Morocco after nearly 30 years of travel. The book is not just a diary of where he went, but a detailed description of the people, cultures, governments, and religions he saw across the world. He traveled about **75,000 miles**, visiting more than **40 countries** of today, including North Africa, the Middle East, East and West Africa, Central Asia, India, China, and even the Maldives. The *Rihla* is very valuable because it gives a **first-hand picture of the 14th-century world**. Ibn Battuta described kings, scholars, traders, and ordinary people, along with cities, food, clothing, and customs. He also explained how Islam was practiced in different regions, showing the unity of the religion but also the local differences. His work is one of the **most detailed travel accounts in history**, and it helps us understand how connected the medieval world was through trade, religion, and culture.

Contribution in modern science:

Though not a scientist, his travel writings provided valuable information for geography, anthropology, and history. His observations on cultures, trade, politics, and geography helped later scholars understand the medieval world.

Contribution in Islamic wellness:

Ibn Baṭṭūṭa's journeys linked different Muslim communities, spreading knowledge of Islamic practices and cultures. His work also emphasized the unity of the Muslim world despite its diversity.

Technic & thoughts:

He used careful observation and detailed descriptions in his writing. His thoughts show both admiration and sometimes criticism of the places he visited, reflecting his Maliki Sunni perspective.

Death & legacy:

Ibn Baṭṭūṭa died around 1369 AD in Morocco. His legacy is his travel book 'Rihla', which remains one of the greatest works of travel literature. His name is remembered as one of the greatest travelers in history.

Critical/critics perspectives:

Some historians argue that parts of his Rihla may have been exaggerated or based on second-hand information. However, most agree that his accounts remain a priceless record of medieval travel and Islamic civilization.

Conclusion:

Ibn Baṭṭūṭa was a Sunni Muslim of the Maliki sect (maslak). His love for travel and keen observation left behind one of the richest sources of knowledge about the medieval Islamic world and beyond.

Ibn Al-Furat:

Introduction:

Ibn al-Furāt (1334/5–1405 AD) was a famous Muslim historian and scholar from Egypt. He is best remembered for his detailed chronicle of Mamluk history.

Full name, parent name:

His full name was Muḥammad ibn Abdullāh ibn Muḥammad ibn al-Furāt.

Early life & background:

Ibn al-Furāt was born in Cairo, Egypt, in 1334 or 1335 AD. His family was connected to scholarship and administration. He grew up in Cairo during the Mamluk Sultanate. He was trained in Islamic sciences, history, and administration, preparing him for a life of scholarship and service.

Personality:

He was scholarly, disciplined, and dedicated to recording historical details. He was a Sunni Muslim, likely following the Shafi sect (maslak), which was common in Egypt at that time.

In which caliphate:

He lived during the Mamluk Sultanate, a powerful Islamic state in Egypt and Syria that ruled after the fall of the Abbasid Caliphate in Baghdad.

His teacher; education & influences:

He studied under well-known scholars in Cairo and was influenced by earlier historians such as al-Tabari and Ibn Khaldun. He combined earlier historical sources with his own careful records.

Career & historical context:

Ibn al-Furāt worked as a historian, chronicling the history of Egypt, Syria, and the wider Islamic world. His career took place in a period of both political turbulence and cultural richness under the Mamluks.

Major work/books:

Ibn al-Furāt's most important book is "**Tārīkh al-Duwal wa al-Mulūk**" (**History of Dynasties and Kings**). This is a large historical work that records the political and social events of the Islamic world, with a strong focus on the **Mamluk period in Egypt and Syria**. In this book, he carefully collected information from earlier historians and added his own observations, making it a very detailed and reliable source. Ibn al-Furāt described the lives of rulers, important battles, political changes, and the rise and fall of dynasties. His writing also includes information about neighboring regions, which helps us understand how the Islamic world was connected with other countries at that time.

What makes his book special is the amount of **detail and accuracy** he provided. For modern historians, "**Tārīkh al-Duwal wa al-Mulūk**" is extremely valuable because it preserves many reports from earlier works that are now lost. It gives a clear picture of the political history of the **14th and 15th centuries**, especially under the Mamluks, who played a major role in defending the Islamic world and shaping its culture. In short, Ibn al-Furāt's book is not just a record of rulers and events but also a **window into the political and cultural life of medieval Islam**.

Contribution in modern science:

Though not a scientist, his historical writings contributed to social sciences by providing reliable data about political, cultural and military events. His detailed records are useful for modern historians and researchers studying medieval Islamic history.

Contribution in Islamic wellness:

By preserving the history of Muslim rulers, dynasties, and society, he strengthened Islamic identity and collective memory. His works helped later Muslims understand the successes and failures of earlier leaders.

Technic & thoughts:

Ibn al-Furāt used a chronological method of recording events. His thoughts were objective, aiming to preserve facts rather than offer deep philosophical analysis. He believed in the importance of documenting history for future generations.

Death & legacy:

He died in 1405 AD in Cairo. His legacy lives on through his historical chronicles, which remain valuable sources for understanding the Mamluk era and Islamic history.

Topics in *Tārīkh al-Duwal wa al-Mulūk*

Rulers and Dynasties – detailed accounts of kings, sultans, and caliphs, especially the **Mamluk rulers**.

Battles and Wars – descriptions of important military campaigns, conflicts, and defenses of the Islamic world.

Political Affairs – information about government, leadership struggles, and power changes.

Relations with Other States – reports about neighbouring regions and how they connected with the Mamluks.

Events and Incidents – records of natural disasters, rebellions, and other major happenings of the time.

Cultural Notes – occasional details about scholars, cities, and society, though the focus is mainly political.

Critical/critics perspectives:

Some later scholars criticized his work as being too detailed and repetitive, but many praised it for accuracy and reliability. His records are among the most important sources for the study of Mamluk history.

Conclusion:

Ibn al-Furāt was a Sunni Muslim, most likely of the Shafi sect (maslak), whose dedication to history made him one of the key chroniclers of the Mamluk period. His work continues to guide historians in understanding medieval Islamic politics and culture.

24. Ibn Khaldun & Al-Kashi

Ibn Khaldun.

Introduction:

Ibn Khaldūn (1332–1406 AD) was a famous Muslim historian, sociologist, philosopher, and statesman. He is considered one of the founding fathers of social sciences and modern historiography.

Full name, parent name:

His full name was Walīuddin Abū Zayd Abdul Raḥmān ibn Muḥammad ibn Khaldūn al-Ḥaḍramī. His father's name was Muḥammad ibn Muḥammad.

Early life & background:

Ibn Khaldūn was born in Tunis (north Africa) in 1332 AD, born into an educated Andalusian Arab family that had migrated to North Africa. Ibn Khaldūn belonged to a distinguished Andalusian Arab family. His ancestors were originally from Hadramawt in Yemen, so they were called as al-Ḥaḍramī.

From Yemen, his family migrated to Andalus (Muslim Spain) during the early centuries of Islamic rule and eventually settled in Seville (Ishbīliya), one of the great cultural and intellectual centers of al-Andalus. They lived there for generations, becoming part of the Arab elite of Spain. However, when Seville fell to the Christian Reconquista in 1248 AD, the family, like many other Muslim nobles, was forced to leave Spain. They crossed the Mediterranean and resettled in North Africa, choosing Tunis as their new home. It was in Tunis, in 1332 AD, that Ibn Khaldūn was born. Thus, although Ibn Khaldūn himself was a native of Tunis, his family background was both Arab by origin and Andalusian by heritage, reflecting the long history of Arab migration and settlement in Spain before returning to North Africa.

He grew up in Tunis, receiving an excellent education in the Quran, Hadith, Arabic grammar, mathematics, and philosophy. His family was part of the political and scholarly elite, giving him both religious and worldly training.

Personality:

He was highly intelligent, ambitious, and analytical. He was also deeply religious as a Sunni Muslim, belonging to the Maliki sect (maslak). He combined sharp observation with devotion to faith and social responsibility.

In which caliphate:

He lived during the decline of the Hafsīd dynasty in North Africa and witnessed the political fragmentation of the Muslim world after the fall of the Abbasīd Caliphate in Baghdad. He also served in the courts of Granada, Fez, and Egypt under the Mamluk Sultanate.

His teacher; education & influences:

He studied under leading scholars of Tunis and Fez, learning Islamic law, logic, and philosophy. He was influenced by classical thinkers like al-Farabi, Ibn Sina, and al-Ghazali, as well as his own observation of politics and society.

Career & historical context:

Ibn Khaldūn served as a judge (Qazi), teacher, diplomat, and political advisor. His career took him across North Africa, Spain, and Egypt. He also met the famous conqueror Timur (Tamerlane) in Damascus in 1401 AD. His life was marked by political service and periods of retreat for writing.

Major work/books:

Ibn Khaldūn's most famous book is "Kitāb al-'Ibar" (Book of Lessons), which is a large world history that talks about many different nations and civilizations. However, the most important and well-known part of this book is its long introduction, called the "Muqaddimah" (Prolegomena). In the Muqaddimah, Ibn Khaldūn did not just record history — he explained *how and why history happens*. He wrote about the rise and fall of societies, how power and governments are built, and why they eventually collapse. He also

discussed topics such as economics, trade, education, culture, and even geography, showing how all these affect the strength of a civilization.

The Muqaddimah is very special because Ibn Khaldūn was not only describing events, but also looking for the **rules and patterns** behind human society. For this reason, many scholars consider him one of the **first sociologists** and a pioneer in the **philosophy of history**. His ideas were far ahead of his time, and they are still studied today by historians, economists, and social scientists around the world.

Contribution in modern science:

Ibn Khaldūn introduced **scientific methods to history, stressing evidence, cause-and-effect, and critical analysis**. His theories on the rise and fall of civilizations, economics, and social change influenced later European thinkers such as Montesquieu, Vico, and even modern sociology.

Contribution in Islamic wellness:

He strengthened Islamic scholarship by analyzing history in the light of the Quran and Sunnah. His work guided Muslim rulers on justice, governance, and the dangers of corruption and luxury. He promoted a moral and practical approach to leadership in Islam.

Technic & thoughts:

Ibn Khaldūn's method was based on observation, critical thinking, and comparison. He rejected blind acceptance of historical reports and insisted on verifying facts. His thoughts combined Islamic values with rational analysis.

Death & legacy:

He died in Cairo in 1406 AD while serving as a judge under the Mamluk Sultanate. His legacy is enormous, as his 'Muqaddimah' is still studied in universities around the world as a foundation of sociology, economics, and history.

Main Ideas of the Muqaddimah:

Rise and Fall of Civilizations: Every society has a natural life cycle: it is born, grows strong, then becomes weak, and finally collapses.

Asabiyyah (Social Solidarity / Group Feeling): Strong unity and loyalty within a group (tribe, community, nation) is the main reason for its success. When unity becomes weak, the state also weakens.

Nomadic vs. Settled People: Nomads (desert or tribal people) are tougher; more united, and often conquer cities. Settled city people enjoy luxury, but over time they become soft and lose their strength.

Role of Leadership and Government: Good leadership, justice, and fair taxes make a state strong. Corruption, greed, and heavy taxation destroy societies.

Economics and Labor: Wealth comes from people's work (labor), trade, and production. The economy affects the rise or fall of civilizations. High taxes can kill economic activity and weaken a state.

Education and Knowledge: He explained how people learn, how knowledge is passed, and why education is important for progress.

Religion in Society: Religion can give strong unity and moral values to a society. Religious movements often create new states when political power is weak.

Geography and Climate: He believed that climate, environment, and geography shape the character and lifestyle of people.

Critical/critics perspectives:

Some of his contemporaries criticized him for his political ambitions and frequent shifts in allegiance. However, his intellectual brilliance and honesty in recording history outweighed these criticisms. Modern scholars recognize him as a pioneer of social science.

Conclusion:

Ibn Khaldūn was a Sunni Muslim of the Maliki sect (maslak), whose genius in history, sociology, and politics made him one of the greatest scholars of the Islamic world. His Muqaddimah remains a timeless guide to understanding human society and civilization.

Al-Kāshī.

Introduction:

Jamshīd al-Kāshī (1380–1429 AD) was a famous Muslim astronomer and mathematician of the Timurid dynasty period. He is remembered for his precise calculations and important contributions to trigonometry and astronomy.

Full name, parent name:

His full name was Ghiyāthuddīn Jamshīd ibn Masūd al-Kāshī. His father, Masūd, was a learned man who gave him his early education.

Early life & background:

Al-Kāshī was born in Kashan, Persia (modern-day Iran), around 1380 AD. He grew up in Kashan during the rule of the Timurid dynasty. From an early age, he showed talent in mathematics and astronomy, which later brought him to the attention of rulers and scholars.

Personality:

Al-Kāshī was hardworking, intelligent, and deeply committed to accuracy in science. He was a Sunni Muslim, most likely Hanafi sect (maslak), because he was link with Timurid dynasty & Timurids were most hanafi; he was influenced by the scholarly traditions of Persia. He valued both faith and rational knowledge.

In which caliphate:

He lived during the Timurid Empire under the rule of Shāh Rukh and his son Ulugh Beg, who was known for supporting scholars and scientists.

His teacher; education & influences:

Details of his teachers are not well recorded, but he was influenced by earlier Islamic scholars like al-Tusi and Greek works in mathematics. Later, he worked closely with Ulugh Beg, who was both a ruler and an astronomer.

Career & historical context:

Al-Kāshī became one of the leading scholars at the Samarkand Observatory, founded by Ulugh Beg. He worked on astronomy, mathematics, and instrument design, contributing to the scientific flourishing of the Timurid period.

Major work/books:

Jamshīd al-Kāshī was one of the most brilliant mathematicians and astronomers of the **Timurid period**, and he wrote several important books that influenced science for centuries.

His most famous work is “**Miftāḥ al-Ḥisāb**” (**The Key to Arithmetic**), which served as a **comprehensive mathematics textbook**. It explained practical arithmetic, fractions, and rules of calculation in a very clear way, making it useful for students, merchants, engineers, and scholars alike. Because of its practical approach, it became one of the main reference books for mathematics in the Islamic world.

Another major contribution of al-Kāshī was in **astronomy**. He prepared detailed astronomical tables in a book called “**Khaqānī Zīj**”, which provided accurate data about the positions of stars and planets. These tables were important for calendar making, navigation, and scientific observations.

He also wrote a smaller but groundbreaking treatise called “**Risāla al-Muḥīṭiyya**” (**Treatise on the Circumference**), in which he calculated the value of **pi (π)** to **16 decimal places** — an extraordinary achievement for the 15th century. This accuracy was not reached in Europe until many centuries later.

In addition, al-Kāshī worked on **trigonometry**. His book “**Risāla al-Watar wa al-Jayb**” (**Treatise on the Chord and the Sine**) explained new methods of solving problems in spherical trigonometry, which was very useful for astronomy and geography.

Contribution in modern science:

Al-Kāshī's calculation of pi was accurate to 16 decimal places, far ahead of his time. He also contributed to decimal fractions and trigonometric functions, paving the way for later developments in mathematics. His astronomical tables helped improve planetary models and observations.

Contribution in Islamic wellness:

His works supported Islamic practices such as calculating (Salah) prayer times, qibla direction, and the Islamic calendar. His mathematical advancements also strengthened the role of precise knowledge in Islamic scholarship.

Technic & thoughts:

Al-Kāshī emphasized precision and clarity. He used careful calculation methods and explained mathematics in a way that could be taught to students. His thoughts reflected a harmony between religious devotion and scientific discovery.

Death & legacy:

Al-Kāshī died in 1429 AD in Samarkand. His works influenced both Islamic and European mathematics and astronomy. He left behind a legacy of accuracy and innovation in the sciences.

Main Works of Jamshīd al-Kāshī:

Miftāḥ al-Ḥisāb (The Key to Arithmetic) – A complete **mathematics textbook** covering arithmetic, fractions, roots, and practical methods of calculation.

Khaqānī Zīj – A set of **astronomical tables** with data on stars, planets, and calendars, used for astronomy and navigation.

Risāla al-Muḥīṭiyya (Treatise on the Circumference) – A short work where he calculated pi (π) to **16 decimal places**, one of the most accurate values of his time.

Risāla al-Watar wa al-Jayb (Treatise on the Chord and the Sine) – A work on **trigonometry**, explaining new methods for solving problems in astronomy and geometry.

Sharḥ al-Chaghmīnī fī al-Haya – A commentary on a famous earlier book of **astronomy (cosmology)** by al-Chaghmīnī, showing his depth of knowledge.

Critical/critics perspectives:

Some of his works were not widely known in Europe until later, but within the Islamic world, he was highly respected. Critics note that his achievements were sometimes overshadowed by Ulugh Beg, but modern scholars recognize his independent genius.

Conclusion:

Jamshīd al-Kāshī was a Sunni Hanafi Muslim, mathematician and astronomer whose precise calculations and innovative methods made him one of the greatest scientists of the Timurid age. His works bridged Islamic and modern science, leaving a lasting impact on mathematics and astronomy.

25. Al-Suyūṭī & Al-Taqiuddin.

Al-Suyūṭī.

Introduction:

Jalāluddīn al-Suyūṭī (1445–1505 AD) was a famous Muslim scholar, jurist, historian, and writer from Egypt. He is remembered for his wide-ranging works on Qur'an, Hadith, Islamic law, language, and history.

Full name, parent name:

His full name was Abū al-Faḍl Abdul Raḥmān ibn Abī Bakr ibn Muḥammad Jalāluddīn al-Suyūṭī. His father, Kamāluddīn Abū Bakr, was a religious scholar who died when al-Suyūṭī was only five years old.

Early life & background:

Al-Suyūṭī was born in Cairo in 1445 AD, & also grew up in Cairo, where he received an excellent education despite losing his father early. His sharp memory and quick learning made him a respected scholar even at a young age.

Personality:

Al-Suyūṭī was known for being independent-minded, confident, and deeply devoted to Islamic studies. He was a Sunni Muslim, following the Shafi sect (maslak), and he strongly defended Sunni traditions in his writings.

In which caliphate:

He lived during the later Mamluk Sultanate in Egypt, a time when Cairo was an important center of Islamic learning and culture.

His teacher; education & influences:

Al-Suyūṭī studied under many famous scholars of his time, including Shihābuddīn al-Shārimṣāḥī and Jalāluddīn al-Maḥallī, with whom, he co-authored the famous Qur'anic commentary *Tafsīr al-Jalālayn*. He mastered Qur'an, Hadith, fiqh (law), Arabic grammar, and history.

Career & historical context:

By his thirties, al-Suyūṭī was already a leading scholar in Egypt. He wrote hundreds of works on various subjects, taught students, and engaged in debates with other scholars. However, his independence also brought him into conflict with some religious authorities of his time.

Major work/books:

He wrote more than 500 books, a wide range of Islamic sciences. His writings are remarkable for their depth, clarity, and variety, covering almost every branch of Islamic knowledge. Among his most famous works is:

Tafsīr al-Jalālayn, a Qur'anic commentary co-authored with his teacher Jalāluddīn al-Maḥallī, which became one of the most widely read and studied tafsīrs in the Muslim world due to its brevity and clarity.

His *Al-Itqān fī 'Ulūm al-Qur'ān* is an encyclopedic guide to the sciences of the Qur'an, covering topics such as revelation, collection, interpretation, and linguistic aspects, and it remains an essential reference for Qur'anic studies.

In the field of ḥadīth, al-Suyūṭī produced both *Al-Jāmi' al-Ṣaḡhīr* (a concise collection) and *Al-Jāmi' al-Kabīr* (a larger and more comprehensive collection), which gathered sayings of the Prophet ﷺ from numerous sources, demonstrating his vast mastery of hadith literature.

His *Tārīkh al-Khulafā'* (History of the Caliphs) offers a historical account of Muslim rulers from the time of Abū Bakr (r.a) up to his own period, blending history with insights into governance and leadership.

Beyond these, al-Suyūṭī also wrote on Islamic law (fiqh), Arabic grammar and linguistics, Sufism, and even medicine, making him one of the most versatile scholars of Islam. His ability to produce concise handbooks as well as encyclopedic works ensured his books remained widely used for both teaching and reference throughout the Muslim world.

Contribution in modern science:

Though mainly a religious scholar, al-Suyūṭī contributed to knowledge organization by preserving and systematizing earlier works. His writings in history, language, and medicine (like works on prophetic medicine) influenced later Islamic and even European scholarship.

Contribution in Islamic wellness:

Al-Suyūṭī's works on Hadith and Quran sciences strengthened Islamic learning and practice. His writings on spirituality, ethics, and prophetic medicine guided Muslims on living healthier and more spiritual lives.

Technic & thoughts:

He believed in collecting knowledge from earlier sources, organizing it clearly, and adding his own commentary. His thought was traditional but also independent, often defending Sunni orthodoxy strongly against critics.

Death & legacy:

Al-Suyūṭī died in 1505 AD in Cairo. He left behind a huge legacy of writings that are still studied today. His works remain key references in Qur'anic studies, Hadith, and Islamic history.

Critical/critics perspectives:

Some of his contemporaries criticized him for writing too much and for being too strict in defending his opinions. However, many admired his vast knowledge, memory, and ability to cover almost every subject of Islamic learning.

Conclusion:

Jalāluddīn al-Suyūṭī was a Sunni Muslim of the Shafi sect (maslak), whose scholarship and writings shaped Islamic learning for centuries. His devotion to Qur'an, Hadith, and law made him one of the most respected and productive scholars of the late Islamic Golden Age.

Taqiuddin.

Introduction:

Taqī al-Dīn (تقي الدين) (Taqiuddin) Muḥammad ibn Marūf (1526–1585 AD) was a famous Ottoman Muslim astronomer, engineer, and inventor. He is remembered for his advanced observatory in Istanbul and his many scientific inventions.

Full name, parent name:

His full name was Taqiuddin Abū Bakr Muḥammad ibn Marūf al-Dimashqī al-Ḥanafī. His father, Marūf Efendi, was a religious scholar and judge, which gave him a strong background in Islamic learning.

Early life & background:

Taqiuddin was born in Damascus (Syria) in 1526 AD and later moved to Egypt and Istanbul. From a young age, he showed great interest in astronomy, mathematics, and mechanical devices. He received both religious and scientific education, which allowed him to serve as both a scholar and scientist.

Personality:

He was intelligent, innovative, and practical. He combined religious devotion with scientific creativity. He was a Sunni Muslim, following the Hanafi sect (maslak), which was the official sect (maslak) of the (Usmaniya khilaafat) Ottoman Empire.

In which caliphate:

He lived during the (Usmaniya khilaafat) Ottoman Caliphate under Sultan Murad III, who supported his scientific work, including building an advanced observatory in Istanbul.

His teacher; education & influences:

He studied in Damascus and Cairo, where he was influenced by earlier Muslim scholars such as Ibn al-Shatir and Ulugh Beg. He also studied earlier Greek works in astronomy and mathematics, but he developed his own unique contributions.

Career & historical context:

Taqīuddīn worked as a judge (Qazi), religious scholar, and scientist. Later, Sultan Murad III appointed him as the chief astronomer of (Usmaniya khilaafat) Ottoman Empire. In 1577 AD, he established the Istanbul Observatory, one of the most advanced in the world at the time, where he and his team studied stars, planets, and comets.

The **Istanbul Observatory** was built in 1577 AD in Constantinople (Istanbul) by him. The purpose of the observatory was to study the stars, planets, and the movement of the skies. He wanted to make better calendars, new star maps, and more accurate calculations for astronomy.

Inside the observatory, he built many advanced tools. These included a **mural quadrant** to measure stars, a **mechanical clock** that could measure seconds, and other instruments that were very advanced for that time. In fact, his tools were as good as, or even better than, those used by European astronomers like **Tycho Brahe**, who lived at the same time.

He and his team made many discoveries. They created a new star catalogue, made more exact measurements of the sun, and improved trigonometry methods used in astronomy. He has mentioned all these in his book (recorded the studies). However, the observatory did not last long. In 1580 AD, a comet appeared in the sky. He said it was a good sign for the Ottomans (Usmaniya khilaafat), but when wars went badly, people blamed his predictions. Religious leaders (ulama) were also against his work, saying it was not useful.

Finally, in 1580 AD, the Sultan ordered the observatory to be destroyed with cannons. It only worked for about three years. Even though it was short-lived, the Istanbul Observatory showed the high level of Ottoman science in the 16th AD. Taqīuddīn is remembered as one of the greatest Muslim scientists.

Major work/books:

Taqīuddīn was not only an astronomer but also a great engineer and inventor. He wrote many books where he explained his ideas and inventions. These books help us understand how advanced science and technology were in the Ottoman period.

One of his most famous books is called 'Sidrat Muntahā al-Afkār fī Malakūt al-Falak al-Dawwār' (The Tree of Ultimate Thoughts in the kingdom of rotating spheres). In this book, he wrote about astronomy. He described the stars, planets, and the movement of the heavens. He also made new star charts and improved the accuracy of earlier astronomical tables. This book shows how carefully he studied the universe.

Another important work is 'al-Turuq al-Saniyya fī al-Ālāt al-Ruhaniyya' (The Sublime Methods of Spiritual Machines). In this book, he described different types of machines and especially focused on clocks. He explained how mechanical clocks worked and even designed new types of clocks that could measure seconds. At that time, this was a very big achievement because most clocks were not so accurate. In this book, he explained machines powered by steam and water. He designed water pumps and other devices that worked using steam pressure. This shows that he was far ahead of his time because he imagined machines that later became important in the modern world. His ideas were very similar to what was used much later during the Industrial Revolution.

He also wrote more books on star calendars, position of sun, moon & stars for every day of the year; also on geometry, numbers, optics, clock making, gears & weights etc.

These books prove that Taqīuddīn was a scientist with deep knowledge in many fields. He worked in astronomy, mechanics, and engineering and his writings influenced both the Islamic world and future scientific progress.

Contribution in modern science:

Taqīuddīn introduced new astronomical instruments, improved the accuracy of planetary observations, and described a steam turbine centuries before it was used in Europe. His mechanical clocks and hydraulic machines were highly advanced for his time, influencing later science and engineering.

Contribution in Islamic wellness:

Through his observatory and scientific works, he supported Islamic scholars in determining (Salah) prayer times, the Islamic calendar, and Qibla (direction of Salah-prayer). His inventions in water supply and mechanical devices also improved daily life in Islamic societies.

Technic & thoughts:

Taqīuddīn's approach was based on observation, experimentation, and innovation. He valued accuracy in measurements and was not afraid to challenge earlier scientific models when his data was proved.

Death & legacy:

Taqīuddīn died in 1585 AD. His observatory was destroyed after only a few years due to political and religious opposition, but his writings and inventions survived. He is remembered as one of the greatest Muslim scientists of the Ottoman Empire.

Critical/critics perspectives:

Some critics at the time opposed his work, claiming it was unnecessary or un-Islamic. However, modern scholars praise him for his creativity and his role in advancing astronomy and mechanics.

Conclusion:

He was a Sunni Muslim of the Hanafi sect (maslak). His inventions, observatory, and scientific writings placed him among the greatest scientists of the Ottoman Caliphate. His combination of faith, reason, and innovation left a lasting impact on Islamic and world science.

26. Thābit ibn Qurra (ثابت بن قرة) & Hunayn ibn Ishāq.

Thābit ibn Qurra (ثابت بن قرة).

Introduction:

Thābit ibn Qurra (ثابت بن قرة) (Saabit ibn Qurra) (826–901 AD) was a famous mathematician, astronomer, physician, and translator of the Islamic Golden Age. He is remembered for his important role in preserving and expanding Greek science in the Muslim world. He was born in Ḥarrān to a Sabian family. The Sabians were a separate religious community (not Muslim, not Christian, not Jewish), known for their astronomy and philosophy. Thābit himself remained a Sabian for most, if not all, of his life. There's no strong evidence that he converted to Islam. Allah knows.

Full name, parent name:

His full name was (Saabit) Thābit ibn Qurra ibn Marwān al-Ḥarrānī. His father's name was Qurra ibn Marwān. He came from a Sabian family, a religious group known for its interest in astronomy and mathematics.

Early life & background:

He was born in 826 AD in Harran (Turkey). He was originally part of the Sabian community, which was respected in the Abbasid Empire for its knowledge of astronomy. Later, he moved to Baghdad, the center of Islamic learning and science.

Personality:

He was known for his brilliance, open-mindedness and curiosity, he remained a Sabian by religion for most of his life, though he worked closely with Muslim scholars. His personality reflected tolerance, rational thinking, and dedication to science.

In which caliphate:

He lived during the Abbasid Caliphate, mainly under Caliphs al-Mutaḍid and al-Mutamid. This was the golden era of translation and scientific advancement.

His teacher; education & influences:

He was self-taught in mathematics and astronomy in his early life. Later, he was discovered by the scholar Muḥammad ibn Mūsā ibn Shākir, who introduced him to the House of Wisdom in Baghdad. He was influenced by Greek works of Euclid, Ptolemy, and Galen, which he translated and expanded.

Career & historical context:

In Baghdad, he became one of the leading scholars at the House of Wisdom. He translated many Greek works into Arabic and wrote original research in mathematics, astronomy, mechanics, and medicine. His career reflects the Abbasid commitment to preserving and expanding human knowledge.

Major work/books:

Thābit wrote more than 150 works. In mathematics, he wrote on geometry, number theory, and algebra, including the theory of amicable numbers. In astronomy, he wrote 'Book on the Solar Year' and corrected errors in Ptolemy's Almagest. He also contributed to medicine with works on smallpox and fevers. His translations of Euclid, Archimedes and Galen were used for centuries in both the Muslim world and Europe.

Contribution in modern science:

His contributions to mathematics laid the foundation for algebra and geometry. His astronomical corrections influenced later Islamic and European astronomers. By translating Greek texts, he preserved scientific heritage for the Renaissance. His medical writings also added to the understanding of diseases.

Technic & thoughts:

Thābit believed in observation, logic, and calculation. His method was both experimental and theoretical, balancing practical science with philosophy. He also believed in harmony between religion, philosophy, and science.

Death & legacy:

He died in 901 AD in Baghdad. His legacy continued through his students and his son Sinān ibn Thābit, who became a famous physician. His translations and original works influenced scholars like al-Bīrūnī and Nicolaus Copernicus centuries later.

Critical/critics perspectives:

Some criticized him for holding Sabian beliefs instead of converting to Islam, but Muslim rulers valued his knowledge and gave him patronage. Modern historians praise him as a bridge between Greek and Islamic science.

Conclusion:

Thābit ibn Qurra was a Sabian; he remained a Sabian. However, his contributions to mathematics, astronomy, and medicine made him one of the greatest scholars of the Abbasid Golden Age. He is remembered as a key figure, which preserved Greek science and advanced it for future generations.

Hunayn ibn Ishāq

Introduction:

Hunayn ibn Ishāq (809–873 AD) was a famous physician, philosopher, and translator of the Abbasid Golden Age. He is best known for translating Greek medical and philosophical works into Arabic and Syriac languages, especially the works of Galen and Hippocrates.

Full name, parent name:

His full name was Abū Zayd Hunayn ibn Ishāq al-Ibādī. His father, Ishāq, was a pharmacist, which gave Hunayn an early exposure to medicine and science.

Early life & background:

Hunayn was born in 809 AD into a Christian family of the Nestorian tradition. He was born in al-Hīrah (near Iraq). He learned Syriac, Greek, and later mastered Arabic languages, which allowed him to translate scientific texts. His multilingual skills made him unique among scholars of his time.

Personality:

Hunayn was known for his patience, precision, and honesty. He was a devout Christian, not a Muslim. Despite this, he was respected in the Muslim world and served the Abbasid Caliphs due to his unmatched knowledge and translation skills.

In which caliphate:

He lived during the Abbasid Caliphate, under the rule of Caliphs al-Mamūn, al-Mutawakkil, and al-Mutawakkil's (caliph) successors. This was a time when the Abbasids supported translation of Greek works into Arabic.

His teacher; education & influences:

Hunayn studied medicine in Baghdad under Yūḥannā ibn Māsawayh, a leading Nestorian Christian physician. He also studied Greek in depth to understand original medical texts. He was strongly influenced by Galen, Hippocrates, and Aristotle.

Career & historical context:

He became the head of the House of Wisdom's translation project in Baghdad. He supervised a team of translators and translated more than 100 writing work into Arabic and Syriac. He was also the personal physician to Caliph al-Mutawakkil. His career shows the cooperation between Muslim rulers and Christian scholars during the Abbasid Golden Age.

Major work/books:

His most important contributions were translations of Galen's medical texts. He also wrote original works, including 'Ten Treatises on the Eye,' the earliest systematic book on ophthalmology.

Ten Treatises on the Eye (Ashr Maqālāt fī al-Ayn) book:

Written by Hunayn ibn Ishāq in the 9th AD. It is the earliest systematic book on ophthalmology (the study of the eye and vision) in history. In it the anatomy of the eye in detail (parts like cornea, lens, retina, optic nerve) is explained. He described how vision works — how light enters the eye and how the brain interprets it. Eye diseases, such as cataracts, inflammations, and injuries are too explained & treatments and medicines for eye problems are too mentioned included some early surgical techniques for removing cataracts. The book became the foundation of Islamic ophthalmology and influenced Muslim doctors like Ibn al-Haytham. Later translated into Latin, it shaped European medicine in the middle Ages. Because of this book, Hunayn is often called the “father of ophthalmology.”

His translations of Aristotle, Plato, and medical encyclopedias preserved Greek knowledge for the Muslim world and later for Europe.

Contribution in modern science:

By translating and explaining Greek works, Hunayn helped lay the foundation of Islamic medicine and science. His work was later translated into Latin and influenced European medicine for centuries.

Technic & thoughts:

Hunayn used a careful translation method, focusing on meaning rather than word-for-word translation. He compared different Greek manuscripts to create accurate versions. He believed knowledge should be universal and open to all humanity.

Death & legacy:

Hunayn ibn Ishāq died in 873 AD in Baghdad. His son Ishāq ibn Hunayn continued his translation work. Hunayn's translations became the bridge between Greek science and both the Islamic and European worlds.

Critical/critics perspectives:

Some critics argued that Hunayn's translations were too interpretive, but most praised his clarity and accuracy. Muslim scholars admired him, despite his Christian faith because of his valuable contributions to science and medicine.

Conclusion:

Hunayn ibn Ishāq was a Christian scholar and physician of the Abbasid Golden Age. His works deeply influenced Muslim and European scholars alike. His role in preserving and transmitting Greek science makes him one of the greatest translators and physicians in history.